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David H. Ahl
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Contents

Magazines
Creative Computing 1–4
Microsystems 43
SYNC 5

Books 7–15

Board Game 16

Peripherals 18–21

Software
Apple 22–28
Texas Instruments 29
Atari 30–31
TRS-80 32–37
PET 38–39
Sorcerer 40
SOL-20 41
CP/M 42

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Vol. 3, No. 5—Sept/Oct 1977

Dynamic Debugging System for 8080 Assembly Language: Bibliography of "Limits to Growth" Models: Dwyer: 8 Hour Course in Basic—Part 2: Programming Approaches to Solving Complex Equations: Computerized Conferencing, Symmetric Art on your Computer. Games: Nomad. Rotate. Lissajous. Evaluations: 5 Microcomputer Basics: Software Technology Music System.

Vol. 3, No. 6—Nov/Dec 1977

Programming Techniques: File Structures: CAI: Multiple Problem Types: Computer History Quiz: Final Exams by Computer: Dwyer: 8 Hour Course in Basic—Part 3. Mastermind II. Othello, and Inorganic Chemistry Programs. Evaluations: Nine Microcomputer-based Toys: Comp IV: S-100 Compatible Kits: TDL Xitan: and Three 8080 8K Basics.

Vol. 4, No. 1—Jan/Feb 1978

Fast Sorting Algorithm: How to Write a Computer Simulation: More File Structures: LOGO: Murphy's Laws: Dwyer: 8 Hour Course in Basic—Part 4. Programs for World Population Model, Biorhythms in Basic and APL, Yahtzee, Van Gam, Kirkof, and Network. Evaluations: 3 Electronic Games: Radio Shack TRS-80: Heath H8 System.

Vol. 4, No. 4—Jul/Aug 1978

Features on Business Computing and Word Processing: Special Section on Interfacing Your Computer to the Outside World: Three Perspectives on Video Games: ROM Section: High Resolution Graphics for Apple II: GAMMON and EVILK Motor Cycle Jump Game Programs. Evaluations: Pet: Apple II: Atari Video Pinball: Atari Video Computer.

Vol. 4, No. 5—Sept/Oct 1978

Educational Features: 4 Simulation Articles: Accounts Receivable Systems: Real World Games:A Real-Time Clock You Can Build: All about PASCAL: Intelligent Videodiscs: 40 Programming Ideas: ROM Section: Hex and Star War Games. Evaluations: Exidy Sorcerer: Radio Shack TRS-80: Bally Arcade: Speak & Spell and Spelling B: Computalker Speech Synthesizer: Peninsula Pet Cassettes. Merlin Video Interface.

Vol. 4, No. 6—Nov/Dec 1978

Consumer Computers Buying Guide: Critical Path Analysis: Experiment in Teaching Strategic Thinking: ROM Section, Subject Index and File Index in Basic. Programs for Mail Lists, Patterns, Plotting, Corral, Joust, Puzzle, and a Christmas Letter. Evaluations: CP/M Disk Operating Systems: North Star Horizen: Backgammon Computers: Smart Electronic Games and Video Games.

Vol. 5, No. 1/January 1979

Computers and Robots in Fiction: Guidance Counselor System: Survey of Educator's Attitudes: How to Hide Your Basic Program. A Program to Calculate Depreciation for Taxes, and the Space Maze Game. Counterfeit Cursor and Speed Reading for the Pet. Evaluations: Microsoft Fortran 80: Structured Programming with Tiny c: Smoke Signal's Text Editor: Exidy Sorcerer: Ohio Scientfic Superboard II.

Vol. 5, No. 2—February 1979

Multiple Regression Analysis Simplified; Budget Management; Sports Predictions; PEEKing and POKEing for Video Displays; Interview with Michael Shrayer; Computers and Education—Questions of Value; Game Programs for Gold Mine and Atom 20. Evaluations: Heathkit H-8; Thinker Toys Floppy Disk; Electric Pencil; Western Digital Pascal Chip Set; Four Computer Music Records.

Vol. 5, No. 3—March 1979

Six Articles on Data Base Management: Sports Judging on a Microcomputer; Shopping for a Payroll System; Programming the Game of Go; Business Computing with the Sorcerer; Social Science Survey Program. Evaluations: Terrapin Turtle; Videobrain; Pet Monitor: TRS-80 Floppy Disk; Apple Floppy Disk.

Vol. 5, No. 4—April 1979

Safeguarding Your Computer; Interpretive Programming; Elements of a Good Computer Game; Music Composition; Marin Computer Center. Programs for An Intelligent Calendar, Vertical Graphs and Bar Graphs, Flowers for the PET. Evaluations: Checker Challenger; Video Checkers: Checkbook Maintenance System: Whatsit Data Base Management Program.

Vol. 5, No. 5—May 1979

Word Processing Systems: Pilot Tutorial; Writing User-Oriented Programs; Amoritization Schedules, Reading and Comprehension Exams: Hiding Your Basic Program; Cribbage and Mille Bornes Game Programs. Evaluations: WP Daisy Word Processing; Wordmaster Text Editor: PDI IQ Builder; Malibu 160 Line Printer

Vol. 5, No. 6—June 1979

Eignt Articles on Computer Graphics and Plotting; Using Basic Strings; Microcomputers in the Hospital; Billing Program for the Sorcerer. Inkblot and Greed Game Programs. Evaluations: TRS-80 Voice Synthesizer; HIPLOT Digital Plotter: Structured Systems. Name and Address Program; ALF/Apple Music Synthesizer.

Vol. 5, No. 7—July 1979

Four features on Sorting, Files and Data Bases; Creativity Test; World Power Systems; Personal Finance Model; Two Ecological Simulations; Programs for an Ecological Game. Niche. Brain Teaser. and Zone X. Evaluations: BrighterWriter, SWTPC CT-82 Graphics Terminal; APF PeCos One: Heuristics Speechlab: Micro Pro Super Sort; Diagnostic Programs for the Pet.

Vol. 5, No. 8—August 1979

Can Computers Think?: 5 Basic Language Programming Techniques; The Law and Your Computer; muMath; Image Processing; Manipulating Pencil Files; Adventure, a new type of computer game simulation. The Games HVOLT and FORT. Evaluations: Texas Instruments 99/4; Radio Shack TRS-80 Model II; SWTPC PR-40 for the Pet; IMSAI VIO.

Vol. 5, No. 11—November 1979

Adventure: Complete Listing in Basic. Controlling Household Devices: Car Pooling; Mumps language; Computer Art Exhibition: Build Your Own Joysticks; Telephone Dialer for TRS-80 or Northstar; Teacher-Made Tests; Evaluations: Comparison Chart of 6 Popular Personal Computers; Comparison of 26 Single Board Computers; Electronic Games & Toys; Quick Printer II; Interact Computer; User-Definable Character Generators; TRS-80 Level III Basic; Pet Software from Creative Software; Word Processor; Introl X-10 Home Control System.

Vol. 5, No. 12—December 1979

Controlling Household Devices: Part 2; LOGO; Computerized Biofeedback; Computers at the Rodeo; Creating Digitized Video Images. Programs for using the Microcomputer as an Investment Tool; Animation on the Apple. Magic Tricks. "Turn-Key" CP/M System. Evaluations: More Electronics Games; Language Translators; APF MP1000 Video Game System; 6 Word Processing Printers; Satellite Tracking Software; SysKit for the 8080; Assemblers; CP/M vs. TSC; Statistics for the TRS-80.

Vol. 6, No. 1—January 1980

Interviews with Donald E. Knuth and William Wulf; Six Features on Artificial Intelligence; Air Traffic Controller; Computerized Resume; GROW: A Program that Learns; Evaluations: Six Basics; NEWDOS and TRSDOS; Auto Scribe; Micro Music.

Vol. 6. No. 2—February 1980

Six Articles on Investment Analysis; David Levy; Intelligent Computer Games; Programs: Geneology, Graphing, Genetics; Evaluations: Word Star vs Electric Pencil; Pascal for the TRS-80; Micro Composer; Data Dubber; Sorcerer Word Processing Pac; Trivia Contest Results.

Vol. 6, No. 3—March 1980

Networks for Personal Computers; Artificial Intelligence; How to Make a Basic Tree; Interview with Joel Birnbaum; Three Mile Island Game; Extended Precision Computation; 'Rolodex' Data Base Program; Photographing Your Computer System. Evaluations: TI 99/4, Modems, Cobol, Tiny c, 10 Software Packages.

Vol. 6, No. 4—April 1980

Dr. KiloBYTE's Creative Popular Personal Recreational Micro Computer Data Interface World Journal—the Famous 73 page April Fool parady. 8 Articles on Reading and Language; Interview with Gordon Bell; Evaluations: Heath WH-89; Atari 800 vs PET; Chatworth Mark Sense Card Reader; Adventure.

Vol. 6, No. 5—May 1980

Seven Features on Saving Money with your Computer; Analysis of Stock Options, Budgeting Model, Shopping Lists, Home Inventory, Home Purchase, Retirement Planning. Computer-Aided Model Rocket Design; Two Natural Language Systems; Evaluations: PET 2022 Line Printer; APF Imagination Machine; Personal Software's Desktop Plan; Universal Data Entry System.

Vol. 6, No. 6—June 1980

Fourteen Graphics Articles: Polar Plots, 3-D Graphics, Animation, Graphic Mazes, Motion Simulation, Inside Space Invaders, 7 Music Articles: Digital Audio, Computer-Aided Sight Reading, Design of a Synthesizer, Digital Enhancement of Old Recordings, Comparison of Printers; Evaluations: The Atari Machine; Neelco's Music Box for the PET; HeathKit-Thomas Electronic Organ Kit.

Vol. 6, No. 7—July 1980

Four Articles on Adventure Games: Dragon, Dungeon, How to Fit a Large Program into a Small Machine, How to Write an Adventure. 6 Simulation Features: Genetics, Electric Management, Medical, Ecological, Sports. Self-Reproducing Programs; Man-Machine Dialogs; Selecting a Computer Dealer. Evaluations: Super-Text vs. Easy Writer; Mountain Hardware ROM PLUS+; Toolkit for the Pet; Chart Comparing Basics of 8 Popular Computers.

Vol. 6, No. 8—August 1980

Games Features: Computer Bismarck, Knight's Tour, Guess My Animal, Turnablock Game, Fifteen and Hot. Mind Exerciser. Marketing Your Own Program; Computer Graphic Designs; Robotics Conference; Insertion Sort; Stocks and Listed Options. Evaluations: Magic Wand; VisiCalc; Beta-80; Asteroids in Space.

Vol. 6, No. 9—September 1980

Twenty Educational Applications and Features: Language Arts CAI Development, Grading Program. Computers in the Classroom. Asimov; Point of View; How to Heapsort; New Consumer Electronic Products; TRS-80 Shopping List for Schools. Evaluations: Milliken Math Sequences; Exatron Stringy Floppy; EDS Videotape Series "Little Computers—See How They Run"; 8 Apple II Software Packages; Educational Packages.

Vol. 6, No. 10—October 1980

Symposium on Actor Languages and Smalltalk; Linked Merge Sort; How to Solve It; 9 New Applications and Games; Election Prediction. The Presidential Campaign. Computer Division Evaluations: OSI C2-4P Computer. TRS-80 Voxbox. Two Text Editors. Five Music Systems. 15 Software Packages. BASEX.

Vol. 6, No. 11—November 1980

Actor Languages and Smalltalk—Part 2; Effective Documentation; Bombproof Data Entry; Interactive Systems and Virtuality; Fast Sorting; Controlled Input in Basic; Loosening Packed Basic. Future of Small Business Computing; Planning Your Diet. Evaluations: Electronic Games; Computer Ambush; TR Copy.

Vol. 6, No. 12—December 1980

A Comparison of Basic Systems; Buying Guides to Personal Computers and Electronic Toys and Games; Legal Protection of Computer Programs; Nuclear Power Plant Simulation; Superman Game; Logic Problem Solver; Interview with the inventor of the ZX80, Clive Sinclair; Alvin Toffler; The Electronic Cottage. Evaluations: Sinclair ZX80, Atari, Apple Pascal, CBM2022 Smart Printer, Pearl, Apple II and Apple II Plus, Pet, TRS-80.

ROM

July 1977

SOL. The Inside Story; Braille and the Computer Video Newspaper; A Chip is Born; The Care and Feeding of Your Home Computer. Digital Foam the peripheral of the future.

August 1977

The Kit and I, Part I, by someone who's never soldered before; Introduction to the Fundamentals of Computer Memory; Tips for the Do-it-Yourself Hardware Beginner; Binary clocks; APLomania.

September 1977

Xeroxes and other hard copy off your CRT; Payroll Program; How Computers Work; The Kit and I, Part II; or Power to the Computer; CCD's How They Work and How They're Made; A look at PLATO, an Educational Computer System; IBM 5100.

October 1977

Binary Arithmetic For the Beginner; Microprocessor Aid for the Deaf and Blind; The Kilobyte Card; Scott Joplin on Your Sci-Fi Hi-Fi; Building a Basic Music Board; Flowcharting; Payroll Program.

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Solar Energy Measurement; A Beginners Introduction to BASIC; The Kit and I, Part III; More Music to Play on Your Computer; Micro Maintenance; Solomon and Viet; Putting Together a Personal Computing System; Time Sharing on the Family MICRO.

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Past issues of Creative Computing. What are they worth today? It varies. To a collector, Vol. 1, No. 1 is worth $7 or $8. To a scrap dealer, less than two cents.

But we're not selling old back issues. We're all out.

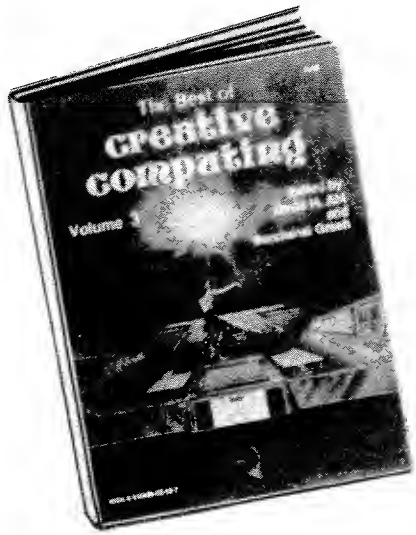
On the other hand, you know that much of the content of Creative Computing is timeless. The Depth Charge program in Vol. 1, No. 1 is just as challenging today as the day it was written. Walter Koetke's series of five articles on using computers in the classrom are as valid today as the day they first ppeared in print. And scores of people have written about obtaining reprints of Don Piele's classic problem-solving series.

Our Mistake

In our early growth years when we had 5,000 and then 10,000 subscribers we couldn't imagine we would ever need more than 1000 extra copies for back issue sales. That's about what we printed extra. However, by the time we were going into Volume 3, we found our stocks of Volume 1 issues virtually depleted.

Our Solution

So we selected the best material from Volume 1, edited it, put it together in book form and sold it for $8.95, about the same



as the six individual issues. Nine months later, we did the same with Volume 2. Then a year and a half later we did it again with Volume 3.

Most other magazines in a high technology field like small computers find their contents are quickly out of date. However, because we've concentrated on applications and software, our content retains its value for a much longer time. Our subscribers know this and retain their copies of Creative Computing long after they've disposed of the more hardware-oriented magazines.

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The Sinclair ZX80 is innovative and powerful. Now there's a magazine to help you get the most out of it.

Get in sync

SYNC magazine is different from other personal computing magazines. Not just different because it is about a unique computer, the Sinclair ZX80 (and kit version, the MicroAce). But different because of the creative and innovative philosophy of the editors.

A Fascinating Computer

The ZX80 doesn't have memory mapped video. Thus the screen goes blank when a key is pressed. To some reviewers this is a disadvantage. To our editors this is a challenge. One suggested that games could be written to take advantage of the screen blanking. For example, how about a game where characters and graphic symbols move around the screen while it is blanked? The object would be to crack the secret code governing the movements. Voila! A new game like Mastermind or Black Box uniquely for the ZX80.

We made some interesting discoveries soon after setting up the machine. For instance, the CHR$ function is not limited to a value between 0 and 255, but cycles repeatedly through the code. CHR$ (9) and CHR$ (265) will produce identical values. In other words, CHR$ operates in a MOD 256 fashion. We found that the "=" sign can be used several times on a single line, allowing the logical evaluation of variables. In the Sinclair, LET X=Y=Z=W is a valid expression.

Or consider the TL$ function which strips a string of its initial character. At first, we wondered what practical value it had. Then someone suggested it would be perfect for removing the dollar sign from numerical inputs.

Breakthroughs? Hardly. But indicative of the hints and kinds you'll find in every issue of **SYNC**. We intend to take the Sinclair to its limits and then push beyond, finding new tricks and tips, new applications, new ways to do what couldn't be done before. **SYNC** functions on many levels, with tutorials for the beginner and concepts that will keep the pros coming back for more. We'll show you how to duplicate commands available in other Basics. And, perhaps, how to do things that can't be done on other machines.

Many computer applications require that data be sorted. But did you realize there are over ten fundamentally different sorting algorithms? Many people settle for a simple bubble sort perhaps because it's described in so many programming manuals or because they've seen it in another program. However, sort routines such as heapsort or Shell-Metzner are over 100 times as fast as a bubble sort and may actually use less memory. Sure, 1K of memory isn't a lot to work with, but it can be stretched much further by using innovative, clever coding. You'll find this type of help in **SYNC**.

Lots of Games and Applications

Applications and software are the meat of **SYNC**. We recognize that along with useful, pragmatic applications, like financial analysis and graphing, you'll want games that are fun and challenging. In the charter issue of **SYNC** you'll find several games. Acey Ducey is a card game in which the dealer (the computer) deals two cards face up. You then have an option to bet depending upon whether you feel the next card dealt will have a value between the first two.

In Hurkle, another game in the charter issue, you have to find a happy little Hurkle who is hiding on a 10 X 10 grid. In response to your guesses, the Hurkle sends our a clue telling you in which direction to look next.

One of the most ancient forms of arithmetical puzzle is called a "boomerang." The oldest recorded example is that set down by Nicomachus in his *Arithmetica* around 100 A.D. You'll find a computer version of this puzzle in **SYNC**.

Hard-Hitting, Objective Evaluations

By selecting the ZX80 or MicroAce as your personal computer you've shown that you are an astute buyer looking for good performance, an innovative design and economical price. However, selecting software will not be easy. That's where **SYNC** comes in. **SYNC** evaluates software packages and other peripherals and doesn't just publish manufacturer descriptions. We put each package through its paces and give you an in-depth, objective report of its strengths and weaknesses.

SYNC is a Creative Computing publication. **Creative Computing** is the number 1 magazine of software and applications with nearly 100,000 circulation. The two most popular computer games books in the world, *Basic Computer Games* and *More Basic Computer Games* (combined sales over 500,000) are published by Creative Computing. Creative Computing Software manufactures over 150 software packages for six different personal computers.

Creative Computing, founded in 1974 by David Ahl, is a well-established firm committed to the future of personal computing. We expect the Sinclair ZX80 to be a highly successful computer and correspondingly, **SYNC** to be a respected and successful magazine.

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Needless to say, we can't fill up all the pages without your help. So send in your programs, articles, hints and tips. Remember, illustrations and screen photos make a piece much more interesting. Send in your reviews of peripherals and software too—but be warned: reviews must be in-depth and objective. We want you to respect what you read on the pages of **SYNC** so be honest and forthright in the material you send us. Of course we pay for contributions—just don't expect to retire on it.

The exploration has begun. Join us.

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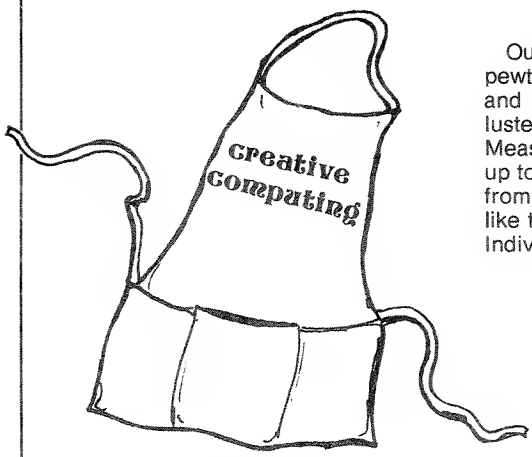
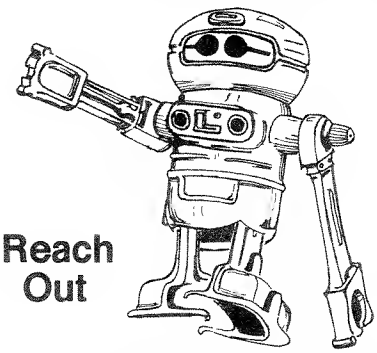


Tie One On

For working around the kitchen, workbench or house there's nothing like a good apron. Our bib-type apron measures 22" from neck to waist and has three deep pockets across the entire 25" front. The Creative Computing logo is silk screened in bold red acrosss the front of this off-white poplin apron. At shows, people try to rip these aprons off our backs. Now you can get one of your own. $6.00.

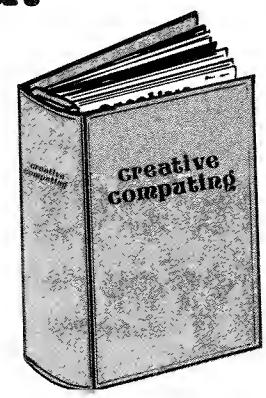
Buckle Up

Our heavy alloy belt buckle has a beautiful pewter finish. The Creative Computing logo and border are raised and have a bright luster finish against a matte background. Measuring 2" x 3-1/4", the buckle fits belts up to 1-3/4" wide. The buckle pin is made from steel and so will not easily break off like the common (and cheaper) cast type. Individually packaged in gift box. $8.00.



Reach Out

Wind up this little acrobatic robot and watch him walk along. Knock him down and he'll reach out with his mighty arms, do a somersault, right himself and keep on walking. Just 2" high, our little acrobatic robot is sure to capture your heart. $2.00.



Neatness Counts

Are your back issues of *Creative Computing* in piles? In boxes? Does the one you want always seem to be missing? If so, you need our binder. It's tough vinyl with the Creative Computing logo silk screened onto both the front and spine. Holds 12 issues with sturdy locking wire posts. $6.00 each or 3 for $15.00. Shipping $1.00.

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Creative Computing Gift Certificate

Here is the perfect gift for the person who has almost everything: A *Creative Computing* Gift Certificate.

Having a difficult time selecting a gift for someone? Don't know what books or software they have now? Then give a *Creative Computing* Gift Certificate. Here's how it works. You send us a check for the amount you'd like the certificate to equal, along with the recipient's name and address. We'll send them a *Creative Computing* Gift Certificate from you for the amount specified. We'll also send them a 48-page catalog from which they can select their gift. Sounds simple? It is. And it's convenient fo you. Get one today. Creative Computing Gift Certificates are available for whatever amount you wish to give.

The story behind the two best selling computer games books in the world.

Computer Games

by David H. Ahl

Everybody likes games. Children like tic tac toe. Gamblers like blackjack. Trekkies like Star Trek. Almost everyone has a favorite game or two.

It Started in 1971

Ten years ago when I was at Digital Equipment Corp. (DEC), we wanted a painless way to show reluctant educators that computers weren't scary or difficult to use. Games and simulations seemed like a good method.

So I put out a call to all our customers to send us their best computer games. The response was overwhelming. I got 21 versions of blackjack, 15 of nim and 12 of battleship.

From this enormous outpouring I selected the 90 best games and added 11 that I had written myself for a total of 101. I edited these into a book called 101 Basic Computer Games which was published by DEC. It still is.

When I left DEC in 1974 I asked for the rights to print the book independently. They agreed as long as the name was changed.

Contents of *Basic Computer Games* (right) and *More Basic Computer Games* (below).

Artillery-3
Baccarat
Bible Quiz
Big 6
Binary
Blackbox
Bobstones
Bocce
Boga II
Bumbrun
Bridge-It
Camel
Chase
Chuck-A-Luck
Close Encounters
Column
Concentration
Condot
Convoy
Corral
Countdown
Cup
Dealer's Choice
Deepspace
Defuse
Dodgem
Doors
Drag
Dr. Z
Eliza
Father
Flip
Four In A Row
Geowar
Grand Prix
Guess-It
ICBM
Inkblot
Joust
Jumping Balls
Keno
L Game
Life Expectancy
Lissajous
Magic Square
Man-Eating Rabbit
Maneuvers
Mastermind
Masterbagels
Matpuzzle
Maze
Millionaire
Minotaur
Motorcycle Jump
Nomad
Not One
Obstacle
Octrix
Pasart
Pasart 2
Pinball
Rabbit Chase
Roadrace
Rotate
Safe
Scales
Schmoo
Seabattle
Seawar
Shoot
Smash
Strike 9
Tennis
Tickertape
TV Plot
Twonky
Two-to-Ten
UFO
Under & Over
Van Gam
Warfish
Word Search Puzzle
Wumpus 1
Wumpus 2

Introduction
The Basic Language
Conversion to Other Basics
Acey Ducey
Amazing
Animal
Awari
Bagels
Banner
Basketball
Batnum
Battle
Blackjack
Bombardment
Bombs Away
Bounce
Bowling
Boxing
Bug
Bullfight
Bullseye
Bunny
Buzzword
Calendar
Change
Checkers
Chemist
Chief
Chomp
Civil War
Combat
Craps
Cube
Depth Charge
Diamond
Dice
Digits
Even Wins
Flip Flop
Football
Fur Trader
Golf
Gomoko
Guess
Gunner
Hammurabi
Hangman
Hello
Hexapawn
Hi-Lo
High I-Q
Hockey
Horserace
Hurkle
Kinema
King
Letter
Life
Life For Two
Literature Quiz
Love
Lunar LEM Rocket
Master Mind
Math Dice
Mugwump
Name
Nicomachus
Nim
Number
One Check
Orbit
Pizza
Poetry
Poker
Queen
Reverse
Rock, Scissors, Paper
Roulette
Russian Roulette
Salvo
Sine Wave
Slalom
Slots
Splat
Stars
Stock Market
Super Star Trek
Synonym
Target
3-D Plot
3-D Tic-Tac-Toe
Tic Tac toe
Tower
Train
Trap
23 Matches
War
Weekday
Word

Converted to Microsoft Basic

The games in the original book were in many different dialects of Basic. So Steve North and I converted all the games to standard Microsoft Basic, expanded the descriptions and published the book under the new name Basic Computer Games.

Over the next three years, people sent in improved versions of many of the games along with scores of new ones. So in 1979, we totally revised and corrected Basic Computer Games and published a completely new companion volume of 84 additional games called More Basic Computer Games. This edition is available in both Microsoft Basic and TRS-80 Basic for owners of the TRS-80 computer.

Today Basic Computer Games is in its fifth printing and More Basic Computer Games is in its second. Combined sales are over one half million copies making them the best selling pair of books in recreational computing by a wide margin. There are many imitators, but all offer a fraction of the number of games and cost far more.

The games in these books include classic board games like checkers. They include challenging simulation games like Camel (get across the desert on your camel) and Super Star Trek. There are number games like Guess My Number, Stars and Battle of Numbers. You'll find gambling games like blackjack, keno, and poker. All told there are 185 different games in these two books.

Whether you're just getting started with computers or a proficient programmer, you'll find something of interest. You'll find 15-line games and 400-line games and everything in between.

The value offered by these books is outstanding. Every other publisher has raised the price of their books yet these sell for the same price as they did in 1974.

Moneyback Guarantee

Examine one or both of these books and key some games into your computer. If you're not completely satisfied we'll refund the full purchase price plus your return postage.

Basic Computer Games costs only $7.50 and More Basic Computer Games just $7.95 for either the Microsoft or TRS-80 edition (please specify your choice on your order). Both books together are $15. Send payment plus $2.00 shipping and handling to Creative Computing Press, Morris Plains, NJ 07950. Visa, MasterCard and American Express orders should include card number and expiration date. Charge card orders may also be called in toll-free to 800-631-8112 (in NJ 201-540-0445).

Order today to turn your computer into the best game player on the block.

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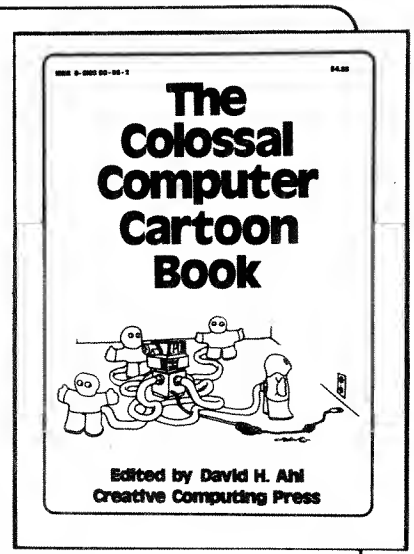
Do Computer Enthusiasts Have More Fun?

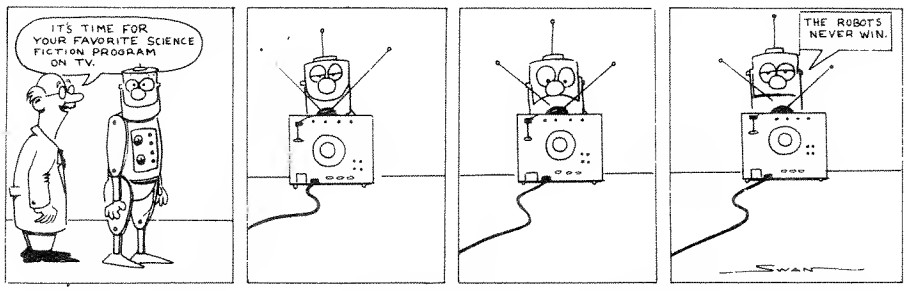
The Colossal Computer Cartoon Book

The best collection of computer cartoons ever is now in its second printing, and sports a bright new cover. The fifteen chapters contain hundreds of cartoons about robots, computer dating, computers in the office, home, and lab, and much more. 36 cartoonists share their views of man's ultimate machine.

Keep this book with your reference works. When needed, the right cartoon can say it all for you. When you need a break from debugging a good laugh can give you a welcome lift. Recommended for hours of fun and comic insight.

Edited by David Ahl, mastermind behind the April Fool's issue of Dr. Kilobyte's Creative Popular Personal Recreational Micro Computer Data Interface World Journal, this cartoon book contains much of that same incurable zaniness. [Want this issue? It's April 1980 and only $2.50 postpaid].





A large 8½ x 11" softbound collection of 120 pages, it still sells for only $4.95. (6G).

A one-hour LP record of eight synthesizers may change your views about computer music forever

Binary Beatles

by David Ahl

Computer music. Who needs it? It's mostly boring beep, beep, beeps or wildly modern stuff. It's certainly nothing you'd want to listen to more than once. That's what I thought about computer music and most of my friends agreed.

In 1978 I entered Yankee Doodle Dandy into my Software Technology system just to be different. Dick Moberg heard of it and asked me to perform in the Philadelphia Computer Music Festival. I agreed expecting to be the only one with something out of the ordinary. I was wrong.

Computer Accompanist

Nine individuals and groups performed in the festival. There were the usual Bach pieces but even they were different. Gooitzen van der Wal performed the last movement of the 2nd Bach Suite in a unique way. He played the flute solo while using the computer as accompaniment.

Then Dorothy Siegel did the same thing, playing the clarinet solo part of Wanhal's Sonata in b flat. The audience went wild.

Hal Chamberlin played Bach's Tocatta and Fugue in d minor. But also with a difference. He used a large computer before hand to "compute" the waveform of every instrument playing every note. It took one hour of computation time for each two minutes of playback time. The result could hardly be distinguished from the organ in the Hapsburg Cathedral.

Don Schertz had a home brewed synthesizer truly mounted on a breadboard that allowed him to control 25 parameters of each note. It produced spectacular sounds in his arrangement of Red Wing.

Singing Computer

In 1962, D.H. Van Lenten at Bell Laboratories produced the first talking computer. Bell engineers taught it to recite the soliloquy from Hamlet. Then they went one step further and taught it to sing Daisy both alone and accompanied by another computer. This was also performed at the festival.

Yes, the Beatles were represented. Andrew Molda played Hey Jude on his COSMAC VIP system with a program called PIN-8 (Play it Now).

Superb Quality Recording

All these pieces and twelve others were recorded with broadcast quality equipment. Because of audience noise, eight were re-recorded later in a studio. We then took these tapes to Tru-Tone, a top recording studio and cut a lacquer master. It was a long session since the recording engineers insisted upon analyzing the sound from every source and setting up the equilization curves accordingly. It took over 12 hours to produce a one-hour lacquer master.

Finished recordings were then pressed on top-quality vinyl and inserted into liners and record jackets. These were then shrink wrapped in plastic for maximum protection. We guaranteee that every LP record is free from defects or we will replace it free of charge.

The extensive descriptions of each of the eight synthesizers and the festival would not all fit on the jacket so we've included an extra sheet with each record. This entire package is mailed in a protective corrugated package to insure that it reaches you in mint condition. The cost is a modest $6.00 postpaid in the U.S. and $7.00 foreign. Send order with payment or Visa, MasterCard or American Express number to Creative Computing, Morris Plains, NJ 07950.

This 12" LP record of the *Philadelphia Computer Music Festival* contains one hour of eight computer music synthesizers that you'll listen to over and over again. Order one today!

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Computer Lawnmower

Can a computer mow your lawn? Not yet.

But a flowchart can show you how to make money cutting five lawns a day. The flowchart is easy. Mowing the lawns is still hard work.

Dr. Sylvia Charp and Marion Ball wanted a way to introduce basic computer concepts to children in grades 5 to 9 of the Philadelphia City Schools. So they identified some tasks that kids understood like mowing lawns, issuing paychecks and controlling traffic lights. They showed how computers are used in these tasks.

Flowcharts - A basic concept

They devised flowcharts. They located scores of photos. And they found an artistic high school student to illustrate these concepts with lively full-color drawings.

They then wrote a light-hearted but informative text to tie it all together. It talked about kinds of computers, what goes on inside the machine, the language of the computer and how computers work for us.

They took the problem of averaging class grades and showed how a simple program could be written to do this job.

Well-qualified authors

Marion Ball has written other books on computer literacy. Sylvia Charp is the director of educational compuuting for Philadelphia City Schools. They pooled their talents to produce this book, *Be A Computer Literate*.

This easy-to-read book explains how computers are used in medicine, law enforcement, art, business, transportation and education. It's interesting and understandable.

Too much demand

The Bell System distributed 50,000 copies to schools throughout the U.S. but they couldn't meet the continuing demand. So Creative Computing Press now distributes the book. It's just $3.95 plus $1.00 shipping and handling. Send name and address plus payment or credit card number and expiration date to Creative Computing Press, Morris Plains, NJ 07950. Visa, MasterCard and American Express orders may also be called in toll-free to 800-631-8112 (in NJ 201-540-0445).

Order yours today. If, after reading it, you do not feel that you are "computer literate," return it for a full refund plus your postage to send it back.

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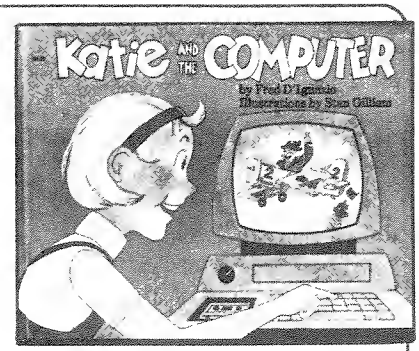
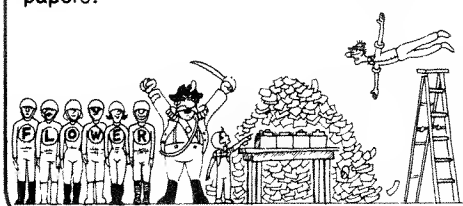
new friends for your child...

Katie and the Computer



Fred D'Ignazio and Stan Gilliam have created a delightful picture book adventure that explains how a computer works to a child. Katie "falls" into the imaginary land of Cybernia inside her Daddy's home computer. Her journey parallels the path of a simple command through the stages of processing in a computer, thus explaining the fundamentals of computer operation to 4 to 10 year olds. Supplemental explanatory information on computers, bytes, hardware and software is contained in the front and back end papers.



Thrill with your chidren as they join the Flower Bytes on a bobsled race to the CPU. Share Katie's excitement as she encounters the multi-legged and mean Bug who lassoes her plane and spins her into a terrifying loop. Laugh at the madcap race she takes with the Flower Painters by bus to the CRT.

"Towards a higher goal, the book teaches the rewards of absorbing the carefully-written word and anticipating the next page with enthusiasm..."

The Leader

"Children might not suspect at first there's a method to all this madness—a lesson about how computers work. It does its job well."

The Charlotte Observer

"...the book is both entertaining and educational."

Infosystems

The book has received wide acclaim and rave reviews. A few comments are:

"Lively cartoon characters guide readers through the inner chamber of the computer."

School Library Journal

"...an imaginative and beautifully conceived children's story that introduces two characters—the Colonel and the Bug—who already seem to have been classic children's story book characters for generations."

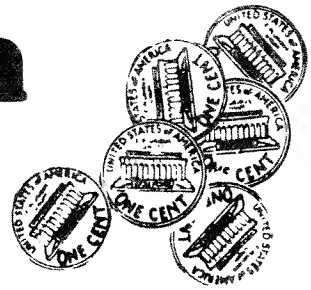
The Chapel Hill Newspaper

Written by Fred D'Ignazio and illustrated in full color by Stan Gilliam. 42 pages, casebound, $6.95. (12A)

A t-shirt with the Program Bug is available in a deep purple design on a beige shirt. Adult size S, M, L, XL. Children's size S, M, L. $6.00.

The most complex computer circuit can be explained with just nine cents

Common Cents



The "penny switch." It sounds strange. But it's not.

Joe Weisbecker, the designer of the RCA 1802 microcomputer, was trying to explain to some children just how a computer works. He wasn't having much success.

Computers Aren't Magic

Joe's hobby is magic. He thought, "maybe I can use some kind of illusion to show how a computer works." But he didn't really want to use an illusion. He didn't want the children to think of a computer as magic.

So he hit upon the idea of a simple flip-flop switch (the most common circuit in a computer) represented by the head or tail of a penny. This flip-flop circuit uses just one penny. Every time it receives an impulse it changes from head to tail or tail to head. Simple.

But then Joe went on and put two of these simple flip flops together to make a circuit that adds two numbers together. And another that subtracts numbers. Kids loved these circuits and played with them like games.

Games With Pennies

Before long, Joe devised circuits to play more complicated games like Tic Tac Toe, Guess A Number and Create A Pattern. Pretty soon he had 30 circuits (or games) that explained everything about computers from a basic adder to complex error correction. The most complex circuit uses just nine pennies (or dimes for the big spender).

These circuits, each one with a full size playing diagram, have been collected together in a book called *Computer Coin Games*. With this book children or adults can easily understand the workings of even the most complex computer circuits.

Games Magazine said, "whether or not you have any experience with computer technology, you'll be both amazed and delighted with the simplicity of the format and the complexity of the play. All you need is some common cents."

Dr. Dobbs Journal agreed, saying, "*Computer Coin Games* is a simple approach to a complicated concept. The book is liberally sprinkled with clever illustrations and diagrams, and provides a relatively painless route to understanding how computer circuits function."

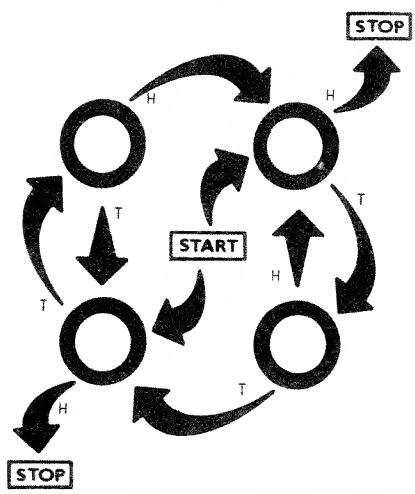
Money back Guarantee

We're convinced that you'll understand the inner workings of a computer after playing these 30 games. If you don't, send the book back and we'll refund the complete price plus your postage to send it back.

To order your copy of *Computer Coin Games*, just send $3.95 plus $1.00 shipping and handling to Creative Computing Press, Morris Plains, NJ 07950. Visa, MasterCard and American Express orders may be called toll free to 800-631-8112 (in NJ, 201-540-0445).

With its wonderful illustrations by Sunstone Graphics, *Computer Coin Games* makes an ideal gift. *The Association for Educational Data Systems* calls the book "an ideal introduction to the concepts of computer circuitry."

Order your copy today.



"Heads Up Game." Starting with tails in all positions, how many times through to get all four pennies heads up?

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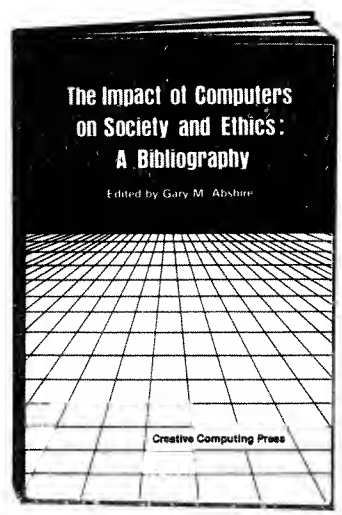
An Important Reference

Computers, Ethics and Society

Where is the computer leading us? Is it a menace or a messiah? What are its benefits? What are the risks? What is needed to manage the computer for society's greatest good? Will we become masters or slaves of the evolving computer technology?

This bibliography was created to help answer questions like these. The works cited can provide the range of facts and opinion necessary to your understanding of the role of the computer.



This is a bibliography of works dealing with the ways in which computers are being used in our society, the beneficial changes that are taking place in our lives as a result of computer technology, the social and ethical problems intensified by the improper use of computers, the dangers of computerized society, the safeguards and defenses against those dangers, the attempts to indicate what computerized direction the future will take, and the responsibilities of computer professionals. It contains 1920 alphabetical entries of books, magazine articles, news items, scholarly papers and other works dealing with the impact of computers on society and ethics. Covers 1948 through 1979.

Compiled by Gary M. Abshire. Hardbound, 128 page. $17.95. (12E)

Problem

The world is full of intriguing problems that never got into a textbook.

Problems for Computer Solution
by Stephen Rogowski.

Ninety intriguing and fascinating problems, each thoroughly discussed and referenced, make an excellent source of exercises in research and preliminary investigation. Eleven types of problems are provided in the following areas: arithmetic, algebra, geometry, trigonometry, number theory, probability, statistics, calculus and science. Author Stephen Rogowski of SUNY-Albany has included several problems which have never been solved. He feels that some research and an attempt to solve these will sharpen students' insight and awareness.

Some of the problems are not new like the one asking how much the $24 the Indians were paid for Manhattan would be worth today had it been deposited in a bank. However, this problem was revised to have a variable interest rate so it would be a challenge to program. Of course, many of the problems are new and have never been in print before.

The student edition has 106 pages and includes all 90 problems (with variations), 7 appendices and a complete bibliography. Cost is $4.95.

The 182-page teacher edition contains solutions to the problems, each with a complete listing in Basic, sample runs, and in-depth analyses explaining the algorithms and theory involved. Cost is $9.95.

To get one or both books send payment plus $2.00 shipping and handling per order to *Creative Computing*. Credit card orders may be called in toll-free to the number below.

Order yours today. If you are not completely satisfied, return it for a full refund plus your return postage.

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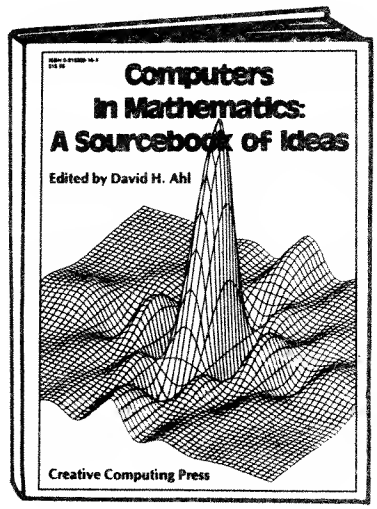
Sourcebook of Ideas

Many mathematics ideas can be better illustrated with a computer than with a text book.



Consider Baseball cards. If there are 50 cards in a set, how many packs of bubble gum must be purchased to obtain a complete set of players? Many students will guess over 1 million packs yet on average it's only 329.

The formula to solve this problem is not easy. The computer simulation is. Yet you as a teacher probably don't have time to devise programs to illustrate concepts like this.

Between grades 1 and 12 there are 142 mathematical concepts in which the computer can play an important role. Things like arithmetic practice, X-Y coordinates, proving geometic theorems, probability, compounding and computation of pi by inscribed polygons.

Endorsed by NCTM

The National Council of Teachers of Mathematics has strongly endorsed the use of computers in the classroom. Unfortunately most textbooks have not yet responded to this endorsement and do not include programs or computer teaching techniques. You probably don't have the time to develop all these ideas either. What to do?

For the past six years, *Creative Computing* magazine has been running two or three articles per issue written by math teachers. These are classroom proven, tested ideas complete with flowcharts, programs and sample runs.

Teachers have been ordering back issues with those applications for years. However, many of these issues are now sold out or in very short supply.

So we took the most popular 134 articles and applications and reprinted them in a giant 224-page book called *Computers in Mathematics: A Sourcebook of Ideas.*

Ready-to-use-material

This book contains pragmatic, ready to use, classroom tested ideas on everything from simply binary counting to advanced techniques like multiple regression analysis and differential equations.

The book includes many activities that don't require a computer. And if you're considering expanding your computer facilities, you'll find a section on how to select a computer complete with an invaluable microcomputer comparison chart.

Another section presents over 250 problems, puzzles, and programming ideas, more than are found in most "problem collection" books.

Computers in Mathematics: A Sourcebook of Ideas is edited by David Ahl, one of the pioneers in computer education and the founder of *Creative Computing.*

The book is not cheap. It costs $15.95. However if you were to order just half of the back issues from which articles were drawn, they would cost you over $30.

Satisfaction Guaranteed

If you are teaching mathematics in any grade between 1 and 12, we're convinced you'll find this book of tremendous value. If, after receiving it and using it for 30 days you do not agree, you may return it for a full refund plus your return postage.

To order, send your check for $15.95 plus $1.00 postage and handling to Creative Computing Press, Morris Plains, NJ 07950. Visa, MasterCard, and American Express orders may be called in toll-free to 800-631-8112 (in NJ 201-540-0445). School purchase orders should add an additional $1.00 billing fee for a total of $17.95.

Don't put it off. Order this valuable sourcebook today.

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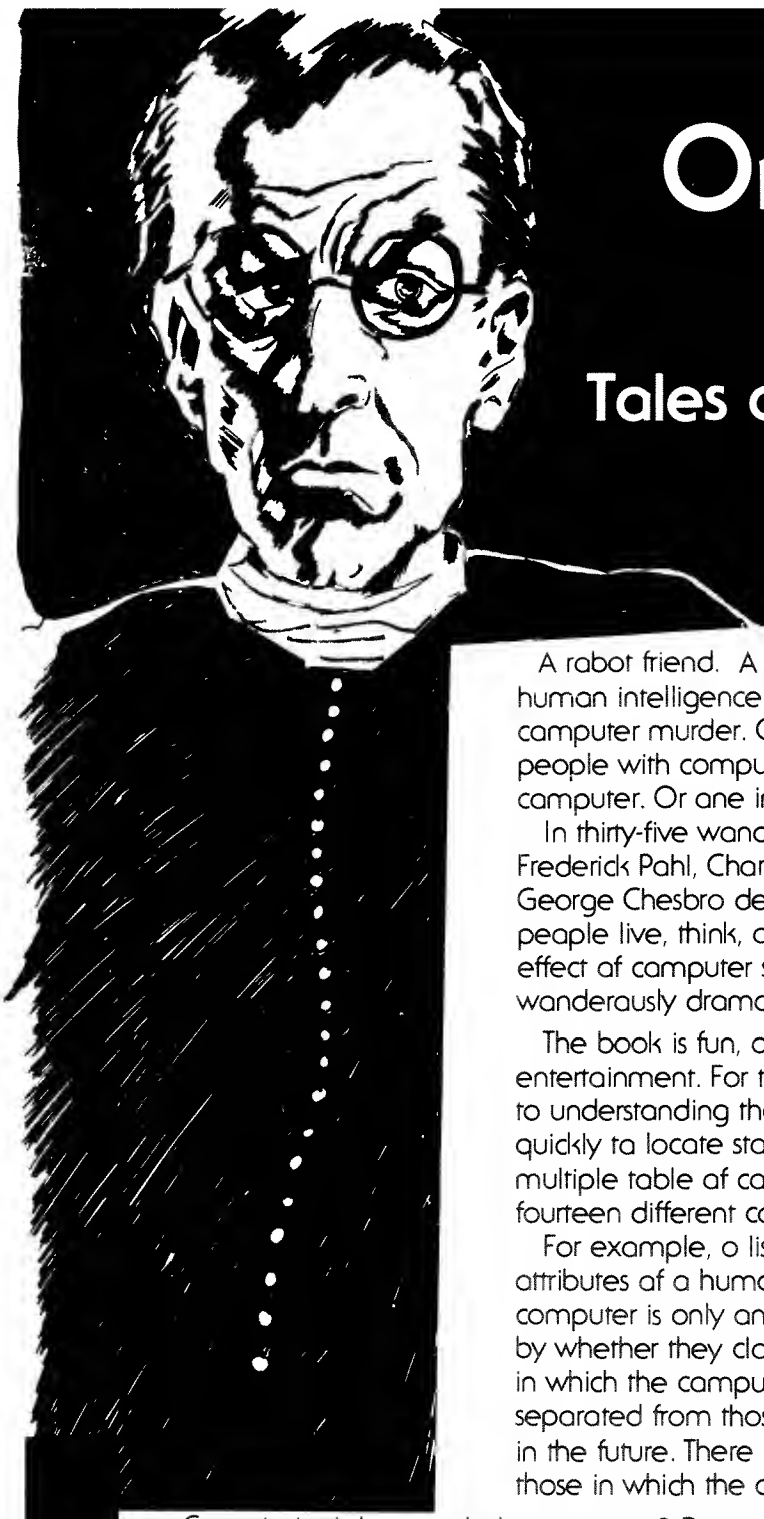

Only Fiction . . . or is it?

Tales of the Marvelous Machine:

35 Stories of Computing

A robot friend. A computer God. Artificial intelligence challenging human intelligence in a life and death struggle. A detective salving a computer murder. Computers tricking people ar people tricking people with computers. A computer with a soul. Or power. A lonely computer. Or ane in love with its operator.

In thirty-five wanderful staries about computers, authors such as Frederick Pahl, Charles Masmann, M.V. Mathews, Caral Cail, and George Chesbro depict a life in which computers affect the way peaple live, think, and relate ta each other. Interested in what the effect af computer saturation might be? Only fiction can so wanderausly dramatize future life.

The book is fun, and will pravide wonderful hours of entertainment. For the reader interested in a structured approach to understanding the patential roles af the computer, or wanting quickly ta locate staries that suppart ar challenge his viewpaint, a multiple table af cantents is provided. This lists the staries in fourteen different categories.

For example, o list of stories in which the computer takes an the attributes af a human separates them from those in which the computer is only an intelligent machine. The staries are categorized by whether they clarify, imprave, or warsen the human lat. Staries in which the computers have capabilities available taday are separated from those in which the capabilities cauld be available in the future. There is a listing af the wildly whimsical staries and those in which the computer is utilized in a unique fashian.

Can criminals be caught by camputer? Daes camputer crime pay? Da computers fall in lave? Are we all part af a larger arganic camputer? Here are 35 tantalizing tales that will open your eyes to a new perspective of cámputers.

Skillfully drawn illustratians augment the staries, giving glimpses of scenes as envisianed by 20 talented artists. This artwork adds anather dimensian ta the text.

Tales of the Marvelous Machines: 35 Stories of Computing, edited by Robert Taylar and Burchenol Green, is a beautiful big 8½" × 11" softbaund anthalogy af 272 pages. 12B

It is available far $7.95 plus $2.00 shipping and handling per arder from Creative Computing, P.O. Box 789-M, Morristown, NJ 07960. NJ residents add 5% sales tax. Visa, MasterCard and American Express orders are welcome. Far faster service, call in your bank card order toll free to **800-631-8112** (in NJ call 201-540-0445). Or use the handy order form bound into this magazine.

creative computing press

Reprints & Previews

Sorting and Shuffling is a 20-page booklet of reprints from *Creative Computing*. It includes in-depth discussions of five sorting techniques (bubble, heapsort, Shell-Metzner, delayed replacement and Woodrum). It also covers file structures and shuffling techniques. Most textbooks either ignore or gloss over these techniques. The booklet is a vital necessity for those doing any programming at all. 50 cents.

Guide to Computer Music Systems by Phil Tubb primarily dicusses the design philosophy behind the ALF computer music system. It also covers the principles of computer music reproduction and compares three popular systems for the Apple II. $2.00.

Stocks and Listed Options by Alfred Adler is a collection of five articles about using a small computer for analysis of a stock portfolio with an emphasis on listed options. The booklet serves as the instruction manual for a 5-program package for the TRS-80 marketing by Creative Computing Software. $1.00.

Odell Woods. This is a program listing in Basic and instruction booklet for a popular MECC program. In it, the user plays the role of a fox, mouse or wolf and attempts to survive in the northwoods. The listing is in Applesoft Basic but uses few special features so it could be converted easily to other systems. $1.00.

Complete 6-year Index

Find it Fast!

Our new 6-year cumulative index lists every article, program and review that has appeared in Creative Computing from its inception in November 1974 to December 1980. The index lists not only the issue in which an article appeared but a cross reference to The Best of Creative Computing, Volumes 1, 2 and 3. It also lists all the articles in ROM magazine.

Articles are classified by subject area and listed by title and author. Over 3500 separate items are included. Note: the index does not include a cross reference to author.

Looking for information on computers in education? You'll find 76 articles and 155 application programs. How about art and graphics? You'll find 44 entries. In the market for a computer? You find 82 hardware evaluations and 94 of software.

Price of this huge index is just $2.00. Even if you've been a reader for only a year or two you'll find the index of great value. Orders yours today.

creative computing

Morris Plains, NJ 07950

Special editions for Apple, Atari and TRS-80 Computers.

Programming is Child's Play

Hey kids, are the folks out of the room? Good, 'cause I've got a secret to tell you. You know that computer they fuss over? Well, kid, between you and me, this whole programming thing is a lot simpler than they realize.

What's that? Sure, you can learn. Just get a copy of **Computers For Kids.** It's a super book, and it tells you everything you need to know. Huh? You have an Apple? No problem. There's a version just for the Apple. One for the TRS-80 and one for the Atari too, with complete instructions for operating and programming.

The book will take you through everything programmers learn. Its easy to understand and the large type makes it easy to read. You'll find out how to put together a flowchart, and how to get your computer to do what you want it to do. There's a lot to learn, but **Computers For Kids** has 12 chapters full of information. You'll even learn how to write your own games and draw pictures that move.

Just so the folks and your teachers won't feel left out, there's a special section for them. It gives detailed lesson ideas and tells them how to fix a lot of the small problems that might pop up. Hey, this book is just right for you. But you don't have to take my word on that. Just listen to what these top educators have to say about it:

Donald T. Piele, Professor of Mathematics at the University of Wisconsin-Parkside says, "**Computers For Kids** is the best material available for introducing students to their new computer. It is a perfect tool for teachers who are learning about computers and programming *with* their students. Highly recommended."

Robert Taylor, Director of the Program in Computing and Education at Teachers College, Columbia University states, "it's a good idea to have a book *for children*."

Not bad, huh? Okay, you can let the adults back in the room. Don't forget to tell them **Computers For Kids** by Sally Greenwood Larsen cost only $3.95. And tell them you might share it with them, if they're good. Specify edition on your order: TRS-80 (12H); Apple (12G); Atari (12J).

Your local computer shop should carry **Computers For Kids**. If they don't ask them to get it or order by mail. Send $3.95 payment plus $1.00 shipping and handling to Creative Computing Press, P.O. Box 789-M, Morristown, NJ 07960.

creative computing press

Build Your Library!

Our warehouse is bursting at the seams. We just don't have enough room for everything we publish. So we've put together some cartons of every single thing we print plus some other books and **cut the price nearly in half.** The books are brand new—not damaged or rejects. The magazines range from July/August 1977 to December 1980. We don't have every issue, of course, but there are over 4200 pages of good reading in the 28 issues of *Creative Computing* and another 700 pages in the 7 issues of *ROM*.

Huge 45% Discount!

Here's the ideal way to start or build a basic computer library. There are 15 books on applications, the impact of the computer on society, sets of problems and much more. The package has 35 timeless magazines. You'll get a nifty board game, an LP record, 6-year index, and a set of binary dice. All together 56 separate items for only $130.00 postpaid!

If you just want the 35 magazines alone, they're available for $45.00 postpaid, still a whopping 42% discount.

Orders must be prepaid by check or money order. (Sorry we can't afford WATS charges or bank card charges on a deal this good.)

Send order and payment to:

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Warehouse Sale
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Here's what you get—

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More Basic Computer Games	7.95
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Computer Coin Games	3.95
Be A Computer Literate	3.95
Computers in Mathematics: A Sourcebook of Ideas	15.95
The Impact of Computers on Society and Ethics: A Bibliography	17.95
Katie and the Computer	6.95
Problems for Computer Solution-Student Edition	4.95
Problems for Computer Solution-Teacher Edition	9.95
Miscellaneous Items	
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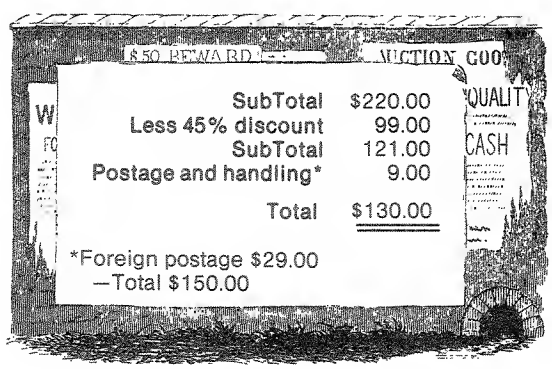
First Philadelphia Computer Music Festival 12" LP Record	6.00
6-year Index	2.00
Mr. Spock Poster	1.00
Reprint: Sorting, Shuffling and File Structures	.50
35 Magazines	
Creative computing: 28 issues from Vol. 3, No. 4 to Vol. 6 No. 12)	56.00
ROM (7 issues, numbers 1 to 7)	14.00

Save!



In which we sell a 386 page, $11.95 book for just 2¢.

Liquidation Giveaway

Byte magazine. You've seen it. It's the fat technical one.

Back when *Byte* was first publishing independently, *Creative Computing* and *Byte* cooperated in many areas. We ran joint promotions, directed articles to each other and the like.

In 1976, Creative published *The Best of Creative Computing, Volume 1*. I proposed to Virginia Londoner, publisher of *Byte*, that we also publish articles from *Byte* in book form. She agreed, and so we published *The Best of Byte, Volume 1*. It's a huge book of 386 pages with articles on hardware, software, technical tutorials, how-to materials and even some philosophy.

Although some of the technical material in *The Best of Byte* is out of date today, it nevertheless provides a good historical framework for the personal computing field. Not at all out of date are most of the software articles and tutorials. Similar books of other publishers are selling for $20 and up, so at $11.95, this one is quite a bargain.

Big Hearted

About the same time we were preparing *The Best of Byte* for publication, Nat Wadsworth of Scelbi approached Byte about doing a similar book. Virginia wanted to be nice to everyone, so she gave permission. Thus was born the *Scelbi-Byte Primer*.

Unfortunately, about half of the content of the two books was identical. Thus *Byte* was faced with a dilemma of which book to endorse and sell through their magazine. Inexplicably, they chose the Scelbi book. Thus we were left with twelve skids of *The Best of Byte*.

Hidden Away

In the next three years we sold a lot of these books. In fact, after we ran a special in 1979, we thought we had sold out.

However, we just moved to new quarters. In the move we found, lurking away in the back of our old garage, four skids of *The Best of Byte*. After some fitting words, the boss said "for 2¢, I'd give them away." So that's what we're doing.

Our Ridiculous Offer

The original price of *The Best of Byte* was $11.95. If you order $11.95 worth of any of our other books or records, we'll throw in *The Best of Byte* for 2¢.

Thus you could order *The Best of Creative Computing, Vol. 3* ($8.95) and *Computer Coin Games* ($3.95). The toal price is $12.90. For $12.92 you also get *The Best of Byte*. Shipping and handling on all book orders is $2.00.

Here are the books you can use to come up with an $11.95 or greater total:

Best of Creative Computing, Vol. 1	$8.95
Best of Creative Computing, Vol. 2	8.95
Best of Creative Computing, Vol. 3	8.95
Basic Computer Games	7.50
More Basic Games (Microsoft)	7.95
More Basic Games (TRS-80)	7.95
Computer Coin Games	3.95
Be A Computer Literate	3.95
Computers in Mathematics	15.95
Problems for Computer Solution	
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(Teacher)	9.95
Computers in Society Bibliography	17.95
Katie and the Computer	6.95
Computers For Kids (TRS-80)	3.95
Computers For Kids (Apple)	3.95
Tales of the Marvelous Machine	8.95
Colossal Computer Cartoon Book	4.95
Computer Rage Game	8.95
Computer Music Record	6.00

Limited Supply

We expect a heavy response to this offer, so order today to be sure of getting *The Best of Byte* for just 2 cents.

Send us your order for books of $11.95 or greater plus 2¢ for *The Best of Byte* and $2.00 postage handling. Send payment or Visa, MasterCard or American Express number and expiration date to the address below or call our toll-free number.

Don't delay; order today.

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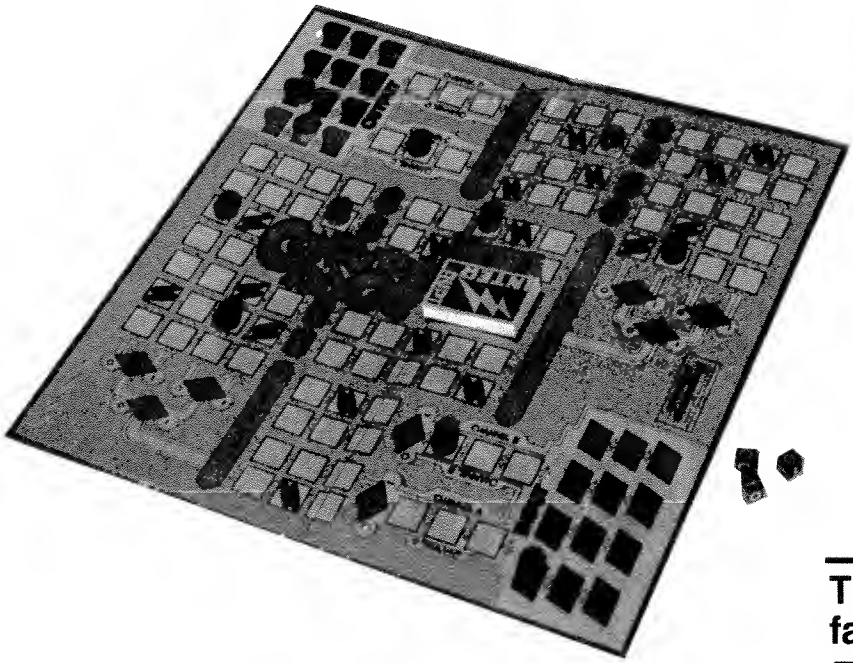

High Roller

Three binary dice add up to fast fun and easy winnings

Binary dice? That sounds strange. What's the point?

Each binary die has six sides but instead of one to six spots, three sides have the numeral one and three have a zero. When rolled, the three dice, red, blue and green, produce a 3-bit binary number.

The binary number can be easily converted to a decimal numbr. A binary 101 equals a decimal 5. After using these dice a few times, these conversions are quickly done even by 7 year olds.

Designed for Understanding

Binary dice are just one of many unique elements of the *Computer Rage* board game. The whole game is designed to help players easily understand the complexities of a large multiprocessing computer system while having great fun playing.

Imagine you're using a large computer along with many other users. It's Thursday and payroll checks have to be run. They have priority over your job. When this happens in the game you lose a turn. But then a vice president wants the results from the program you're working on—take another turn. Oh, oh, in your hurry, you make a program mistake. Too bad—return to the last checkpoint.

Meanwhile one of your opponents, a fellow user of the computer, has heard from the president that one of his three programs has top priority; it advances to the output queue. But wait, on your next move you land on an "interrupt" and find that a brownout has just occurred, the computer has crashed, and all the programs of all players must return to the last checkpoint.

The binary dice return to your opponent. He rolls 011, a four, and lands on a decision point. Rolling one die he gets a 1 which means he takes an 8-step flow intead of a 16-step one.

One it goes until one of the two to four players gets all of his programs to the output printer and wins.

Sets of three binary dice used in Computer Rage are available separately.

Sturdy Components

The game comes with a colorful, big 19" x 19" playing board, 38 interrupt cards, 12 miniature disk pack playing pieces (3 for each player) and 3 binary dice. A supplement to the rules describes the way in which *Computer Rage* parallels a multiprocessing system.

Computer Rage is designed for players from 7 to 14 years old but obviously can be played by adults as well. It is for two to four players. Many schools use the game along with a book such as *Be A Computer Literate* in computer literacy units for Grades 3 to 8. It's also an excellent game to have available in open or alternative classrooms.

Discounts Available

In fact we feel so strongly that *Computer Rage* should be in every school that we're offering a special discount to schools and to people who buy a game for a school.

The price of one game is $8.95 postpaid. Buy one game for your family and another for a school and the total price is just $14.00 postpaid (and $8.95 is tax deductible). Individuals or schools buying five or more games may take a whopping 50% discount—just $4.50 each. Customers outside of the U.S. must add $2.00 additional postage per game.

If you'd like an extra set of three binary dice for home or classroom, they are available for just $1.25 per set or five sets for $5.00.

Order today at no risk. If you're not completely satisfied, return the game or dice for a full refund. To order, send your check or charge card number to the address below. Visa, MasterCard, and American Express orders may be called in toll-free to **800-631-8112** (in NJ 201-540-0445). School purchase orders should add an additional $1.00 billing fee.

Don't put it off. Order this entertaining and educational game today.

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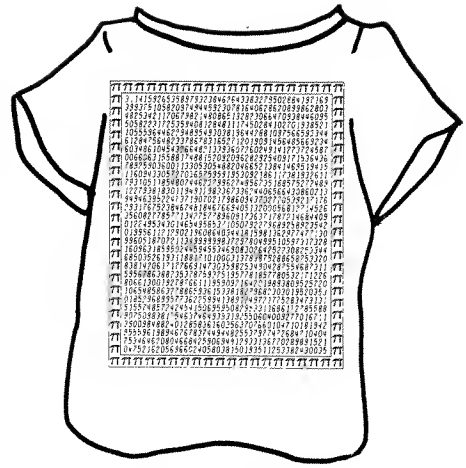
Toll-free **800-631-8112**
(In NJ 201-540-0445)

Creative Computing-- Albert Einstein in black on a red denim-look shirt with red neckband and cuffs.

Creative's own outrageous **Bionic Toad** in dark blue on a light blue shirt for kids and adults.



Plotter display of **PI to 625 Places** in dark brown on a tan shirt.

I'd rather be playing spacewar-- black with white spaceships and lettering.

Give your tie a rest!

All T-shirts are available in adult sizes S,M,L,XL. Bionic Toad, Program Bug and Spacewar also available in children's sizes S(6-8), M(10-12) and L(14-16). Made in USA. $6.00 each plus 75 ¢ shipping.

Specify design and size and send payment to Creative Computing, 39 E. Hanover Ave., Morris Plains, NJ 07950. Orders for two or more shirts may be charged to Visa, MasterCard or American Express. Save time and call toll-free **800-631-8112** (in NJ 201-540-0445).

Crash Cursor and Sync from the comic strip in SYNC magazine emblazoned in white on this black shirt.

Computer Bum-- black design by cartoonist Monte Wolverton on gray denim-look shirt with black neckband and cuffs.

The **Program Bug** that terrorized Cybernia in Katie and the Computer is back on this beige t-shirt with purple design. You can share the little monster with your favorite kid.

Roll down the block with this little black **Robot Rabbit** (on a bright orange t-shirt) on your back and you can intimidate every carrot, radish or cuke in your way.

ALF Music Synthesizer

The ALF Apple Music Synthesizer (AMS) is an easy to use peripheral which allows you to program music into an Apple II computer using standard musical notation. The ALF kit includes the synthesizer board (plugs into any peripheral slot), exceptional quality software, and an extensive user manual.

Sophisticated Music Entry Program

Sheet music is easily entered using the Apple game paddles. The high-resolution ENTRY program features the familiar music staff with a "menu" of musical items listed beneath it (note lengths, rests, edit commands, accidentals, etc.). One game paddle moves a cursor up and down the music staff and is used to select the note pitch; the second paddle chooses from the menu items (note length, etc.) With the ALF hi-res ENTRY program, you won't have to use cryptic codes to select note parameters.

As you program sheet music with ENTRY, measure bars are inserted automatically (and note values are tied over the bar where necessary). Key signatures are also automatic—you don't have to keep writing in every sharp or flat!

Three monophonic, individual parts can be programmed with each ALF Music Synthesizer. Two boards are required for stereo. A total of three synthesizers can be used simultaneously for a maximum of nine voices. By controling the envelope (or shape) of each voice, many different instrumental sounds can be simulated.

Eight-octave Range

The ALF Music Synthesizer has a pitch range of eight octaves—a wider range than a grand piano. The ALF can also play semitones—"blues notes" or the pitches in between the keyboard notes of a piano. (The pitch range is from 27.5 to 55,000 Hertz, well beyond the limits of human hearing.) Tuning accurancy is virtually perfect within two cents of pitch value.

Every parameter of the ENTRY program can be changed again and again during a musical piece. For example, you can make changes in key, time signature, volume, and timbre (envelope). Parts can be edited at any time, also. Notes can be added or deleted, note length can be changed, as well as pitch, volume, etc.

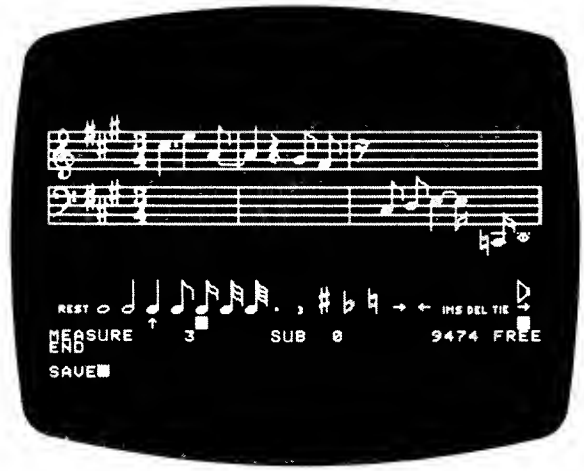
You can save songs on either cassette or disk, and play them back using either ENTRY or PLAY. The playback speed is adjusted with one of the game paddles, and can be varied during the playback, if you wish to change the overall tempo.

Colorful Playback Display

The ALF Music Synthesizer features a 16-color low-res graphic display during song playback. Each musical part is represented on a stylized piano "keyboard"—the intensity of the note determines the color, and the pitch is shown in relation to "middle C".

The ALF Music Synthesizer requires the use of an external audio amplifier. Stereo programming is possible with the use of two or three synthesizer boards.

The ALF software includes the ENTRY and PLAY programs, sample songs, an introduction to "envelope shaping", and demonstrations of advanced uses of the synthesizer.



With the ALF software, entry of music is easy, fast and accurate.

Nine Voices for only $198

The new ALF "AM-II" music synthesizer offers an unbeatable value for the Apple owner who is a music hobbyist. With nine voices on a single music board for $198.00, the AM-II is the most economical device for creating music with the Apple.

The AM-II uses the same excellent ENTRY and PLAY programs as the more sophisticated ALF Music Synthesizer (AMS); the same hi-res graphic display from which notes are selected with the Apple game paddles (not typed with cryptic codes). All of the conveniences of the ENTRY program apply—easy editing, playback with low-res display, ability to save songs on cassette or disk, etc.

The AM-II has **stereo output** (3 voices in left, 3 voices in the middle, 3 voices in the right).

How can the AM-II offer so much for only $198.00? The two basic differences between the AM-II and the ALF Apple Music Synthesizer (AMS) are pitch accuracy and dynamic range. The AM-II has an accurate pitch range of about six octaves. Pitch values above the treble staff become increasingly inaccurate. Also, the AM-II has a dynamic range of 28db, with 16 different volume levels, (the AMS has a dynamic range of 78db).

The AM-II is manufactured with the same high quality standards as other products from the ALF Corporation. No sacrifice has been made in reliability; the new AM-II is simply a great bargain.

Professional musicians will still want to use the original Apple Music Synthesizer (AMS) for its extended range and volume controls (the AMS has a range of 8 octaves). But for the Apple owner who is interested in music as a hobby, the AM-II is the best music peripheral value avallable today.

Requires: 16K Apple II or Apple II Plus, cassette or Disk II, and an external audio amplifier (all necessary patch cords are included).

AM-II ALF/Apple Synthesizer	$198.00
AMS ALF/Apple Synthesizer	248.00

To order, send payment plus $3.00 shipping and handling to Peripherals Plus, 39 E. Hanover Ave. Morris Plains, NJ 07950. Credit card customers should include card number and expiration date of Visa, MasterCard or American Express. Credit card customers may also order toll-free:

800-631-8112

(In NJ call 201-540-0445)

Peripherals Plus

39 E. Hanover Avenue, Morris Plains, NJ 07950

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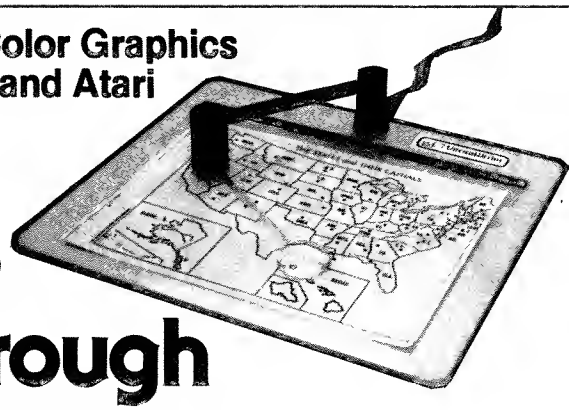
High-Resolution Color Graphics for the Apple and Atari



Graphics Breakthrough

How many programs have you written that would benefit from animated high-resolution graphics? Probably several. It is this kind of dramatic graphics that distinguish outstanding programs from ordinary ones. But if you've ever agonized for hours or days just to get one image perfected, you're probably not anxious to do it again. Now there's a better way.

New Graphics Entry System

Today there is a new graphics system available that is not only amazingly user-oriented but surprisingly economical. Called VersaWriter, it starts with an ingeniously simple entry board consisting of a 14"X12" high impact plastic bed with a tough clear plastic overlay sheet. The original drawing or diagram is fastened with masking tape to the plastic bed and then covered with the clear sheet. Instead of using a light pen or complicated electronic X-Y head, the VersaWriter uses a double jointed arm attached to the top of the entry board at one end and a magnifying lens with crosshairs at the other end. The VersaWriter resembles a draftsman's pantograph on a smaller scale.

At each joint in the arm of the VersaWriter is a potentiometer. A cable from these pontentiometers connects to the paddle input of the computer. No special interface electronics or board is needed. Since the arm of the VersaWriter bends only in one direction, each point on the plotting head corresponds to a unique set of resistances on the potentiometers. All that's needed now is software to translate these resistances into usable screen coordinates.

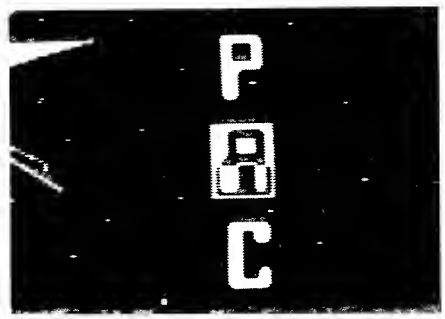
Exceptionally powerful software

It is in the software where VersaWriter really stands out. VersaWriter comes with two full disks of user-oriented software. First it has sets of "low level" commands for entering, creating and copying drawings and diagrams. Secondly, it has extensive sets of application routines for moving, enlarging, rotating, coloring or animating drawings that the user has created.

Graphics Systems

Versa Writer	**$249.00**
Kurta Graphics Tablet	**695.00**
Summagraphics Digitizer	**745.00**
Houston Instruments Hi Pad	**795.00**
Apple Graphics Tablet	**795.00**

Of course the basic commands let you enter a drawing freehand or by tracing it. Want a wider "brush stroke"? Six widths are available. Drawings can be independently scaled in both the vertical and horizontal directions. An enclosed shape may be filled in with any of 212 colors. No, that is not a misprint—by the same technique that a printing press can create hundreds of colors from three primary ones, so can VersaWriter.



Here a shape (the letter A) is being scanned. After putting it in a shape table it may be used in other programs.

From the shape table, a shape (the letter A) may be enlarged, shrunk, rotated, colored or moved about the screen.

Create Animation for Other Programs

The shapes you create with VersaWriter can be used and manipulated with ease in other programs. Up to 255 shapes can be entered into a shape table. These shapes may then be placed on the screen in any position or may be overlaid on a full or partial screen image. Animation is produced easily by moving about a portion of the image created by VersaWriter. For example, by alternating between two images of an airplane propeller it will appear to be spinning.

Other VersaWriter software includes text-writer with which text can be added to graphics. Upper and lower case, choice of color, text size, direction and starting point all may be specified.

The Area/Distance program lets you calculate distances (or perimeters) by entering a scale and tracing a shape or map route with the drawing arm. Areas of figures, open and irregular, can be similarly calculated.

The software also includes sets of electronic and computer logic shapes. In addition, an entire disk of dramatic demonstration graphics is included. These twelve full-screen graphics run the gamut from a fully labeled cross section of a human skull to colored maps to animated cartoons to an electronics schematic.

Free Software Updates

You may have read a review of VersaWriter that indicated that the color fill routine was slow. It was. But not anymore. Several new routines and improvements were added to the VersaWriter software since its introduction. All customers of Peripherals Plus received these changes free.

As new updates are developed, Peripherals Plus will furnish them free to all customers FOREVER. We make this unique guarantee because it is in our best interest to have you make the best use of your computer. We're convinced that if other people see your VersaWriter in use, they'll want one too.

Best Performance and Price

At Peripherals Plus, we evaluated every graphics entry device. We wanted to handle the best one regardless of price. VersaWriter has the best performance bar none. Surprisingly it also has the lowest price, just $249.00 for the Apple version.

VersaWriter requires an Apple II with Applesoft in ROM (or an Apple II Plus), disk, and 48K of memory. The Atari version requires an Atari 800, disk and at least 32K. It is priced at $300.

VersaWriter comes complete with two disks of software, a comprehensive instruction manual, a 90-day limited warranty and Peripherals Plus unique guarantee of software updates forever.

Try VersaWriter for 30 days. If you are not completely satisfied we'll give you a prompt and courteous refund of the full price plus shipping both ways.

To order, specify Apple or Atari version, send payment plus $3.00 shipping and handling to Peripherals Plus, 39 East Hanover Ave., Morris Plains, NJ 07950. (New Jersey residents please add 5% Sales tax.) Credit card customers should include card number and expiration date of Visa, MasterCard or American Express card. Credit card customers may also call toll-free 800-631-8112 (in NJ 201-540-0445).

For spectacular graphics on your computer, order VersaWriter today.

Peripherals Plus

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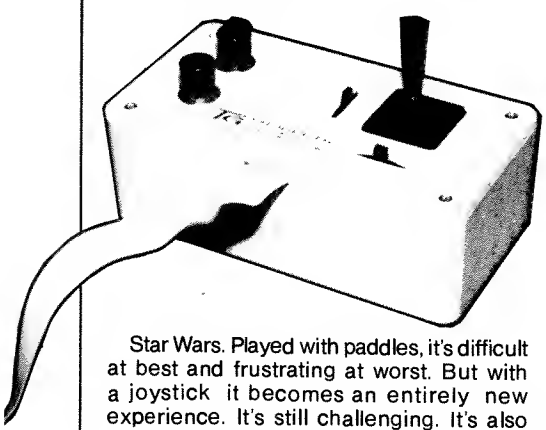
(In NJ 201-540-0445)

Apple is the registered trademark of Apple Computer, Inc.

Why would anyone spend $59.95 for a joystick?



Super Joystick

Star Wars. Played with paddles, it's difficult at best and frustrating at worst. But with a joystick it becomes an entirely new experience. It's still challenging. It's also fun. And very addictive.

Have you ever used a drawing program in which one paddle controls the horizontal movement of the "brush" and the other paddle the vertical? It's slow, tedious work. But with a joystick, drawing is an absolute joy.

Exceptional Precision

The Apple high-resolution screen is divided into a matrix of 160 by 280 pixels. To do precise work on this screen, you need a precise device. Most potentiometers used in paddle controls are not quite linear. If you rotate a paddle control at a constant speed, you'll notice that the cursor speeds up slightly at the beginning and end of the paddle rotation.

The Super Joystick has a pure resistive circuit which is absolutely linear within one tenth of one percent. In other words it would give you precise control over an image of 1000 by 1000 pixels, were such resolution available. Thus it is suitable for high precision professional applications as well as educational and hobbyist ones.

Matched to your application

The Super Joystick also has two external trim adjustments, one for each direction. This allows you to perfectly match the unit to your application and computer. Say you want to work in a square area instead of the rectangular screen. Just reduce the horizontal size with the trim control.

How many times have you played Space Invader and had your thumb ache for hours from the repeated button pressing? This won't happen with the Super Joystick. It's two pushbuttons are big. Moreover, they use massive contact surfaces with a life of well over 1,000,000 contacts. A few games of Super Invader using these big buttons will justify the purchase of the Super Joystick.

The Super Joystick is self-centering in both directions. That means when you take your hand off it, the control will return to the center. However, if you want it to stay where you leave it, self-centering may be easily disabled.

The Super Joystick plugs right into the paddle control socket and doesn't require an I/O slot.

High-quality construction

The sturdy metal case of the Super Joystick matches that of the Apple computer. Every component used is the very highest quality available. The Super Joystick even uses a full 16-conductor ribbon cable so you can add a second joystick if you wish. The first Super Joystick replaces Paddles 0 and 1. You may not realize it, but the Apple can support four paddle controls. A second Super Joystick would replace Paddles 2 and 3.

By removing two springs, self-centering can be defeated.

We invite your comparison of the Super Joystick with any other unit available. Order it and use it for 30 days. If you're not completely satisfied, return it for a prompt and courteous refund plus your return postage. You can't lose.

The Super Joystick consists of a self-centering, linear joystick, two trim controls, and two pushbuttons mounted in an attractive case. It comes complete with an instruction booklet and 90-day limited warranty. Cost is $59.95.

Order Today

To order the Super Joystick send $59.95 plus $2.00 postage and handling (NJ residents add $3.00 sales tax) to our address below.

Experience the joys of using the world's finest joystick. Order your Super Joystick at no obligation today.

Peripherals Plus

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Morris Plains, NJ 07950
Toll-free **800-631-8112**
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Super Paddle

Are the paddle controllers on your Apple wearing out? Or did you get a new Apple without paddles?

We've got good news for you! Super Paddles. Each paddle control consists of a high-precision linear potentiometer and a big (1/2" D) industrial-quality pushbutton mounted in a sturdy 4" x 2" x 1" metal case which matches the Apple. Each of the two paddles is connected with a long 5-foot cable to the Apple paddle socket.

Every component in a set of Super Paddles is the very finest quality available. The set is backed by a 90-day limited warranty from the manufacturer as well as Peripherals Plus' moneyback guarantee of satisfaction.

To order, send $39.95 plus $2.00 postage and handling (NJ residents add $2.00 sales tax) to the address below. Credit card customers may call orders to our toll-free number.

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Blank Cassettes

The quality of cassette tape used to save and load programs is an important factor in getting the programs to run. Tape quality for computers is measured differently from quality for audio tape. The tape must be capable of sending to the computer the electronic signals of the program without transmitting extraneous noises that could interfere with the ability of the computer to load the tape.

Our blank cassettes are tested and recommended for computer use. C-10 cassette, 5 min. per side, blank label on each side in a Norelco hard plastic box. [0010] $1.25 each.

Head Cleaner

After hours of use, the read/write head in a cassette recorder will pick up minute particles of tape oxide. This dirt will hardly be noticable in dictation or music. But it is very noticable in computer use. One dropped bit in 16,000, and the program won't load.

Help keep your recorder in top shape with our non-abrasive head cleaner. It consists of 18 inches of stiff cleansing fabric in a standard cassette shell. One 10-second pass every 40 hours of use will keep your heads as good as new. [0011] $2.00.

Peripherals Plus

Morris Plains, NJ 07950

Lynn Busby, president of the Computer Station, as seen by the Dithertizer II.

You and your Apple can have a new view of the world.

Dithertizer!

Dithering. Developed at Bell Labs and MIT, dithering was originally an approach to picture transmission. Compared to other methods, dithering is fast and accurate.

The Dithertizer II was designed for the Apple computer by David K. Hudson, a researcher at MIT. Design goals were high accuracy, fast scanning, maximum reliability and an economical price.

High Quality Images

The resolution is of the Dithertizer is the maximum the Apple can handle in the high-resolution mode, i.e., 280 x 192 (53,760) pixels.

To produce an image, a video camera is focused on the subject. Peripherals Plus furnishes a Sanyo VC161OX camera, a laboratory/industrial unit with an f 1.6 lens. This camera has a focus range of 18" (for extreme close ups) to infinity (for distant subjects).

The camera scans an entire frame in 1/60th of a second. Two frames are scanned, of course, in 1/30th of a second. By adjusting the blackness control (with Paddle 0) to any one of 255 levels you can determine the threshold of gray between the two frames.

A 1/30th second, two-frame scan has two levels of gray and produces a high-contrast but quite recognizable image.

Pictures or Contours

Using the "Contour" software routines and contrast control (Paddle 1), it is possible to subtract one image from another. If the blackness thresholds of the two images are close, say 125 and 127, the resulting image will show just the outlines or highlights of an object.

Another possibility is to reduce the contrast to zero which results in a nearly blank screen except for movement in the area scanned. This type of movement detector is much faster (1/30th second) and more precise than other much more expensve systems. It is currently being used to detect and record movement of laboratory animals. It is also used in security installations.

The "Dithering" software routines use the contrast control to divide an image into gray tones. As mentioned above, two levels (usually white and black) result in a high contrast image. Four gray levels provide additional definition while sixteen levels produce a highly detailed image in just over 1/4th of a second. Extremely high detail is possible using the highest 64-gray level setting. At this level, an image is produced in 64/60ths of a second or just over one second. The quality of this image is close to that of a halftone photograph found in a newspaper or magazine.

Using Dithered Images

What can one do with a dithered image? Upon completion it can be stored automatically in either page 1 or 2 of the high-resolution graphics area of the Apple. Hence, it can be printed out on practically any printer. To print it on an Apple Silentype printer or equivalent requires no additional software.

To take advantage of the automatic print routines in the Dithertizer itself does require additional software tailored to a specific printer. Software packages are available at $44.95 each for the following printers: IDS 440, 445, 460, and 560; IP225; Anadex DP9500 and DP9501; Spinwriter 5510 and 5520.

Individual images or series of images may also be incorporated in other programs in the same way that other hi-res graphics are used. Using VersaWriter software, for example, text may be added to images. An image may be shown on the screen while a disk is loading or while the computer is completing a time-consuming calculation in another program.

With the proper software, the Dithertizer can be used to perform image enhancement, to identify features, detect motion, track a moving target or create a detailed picture for display. The possibilities are limited only by your imagination.

Quality Construction

The dithertizer is manufactured to exacting specifications by Computer Station. It consists of the Dithertizer II board which plugs into Slot 7 in the Apple II, a cable which connects between the Dithertizer and motherboard and a 10 foot cable to the camera. The system requires a 48K Apple disk system.

The software package consists of three routines on disk: "Dither" to build a gray scale picture, "Contour"to produce an edge scan using image subtraction, and "Dscan" to store a binary image in either page 1 or 2 of the high-resolution graphics area.

Peripherals Plus also includes a Sanyo VC161OX video camera with external horizontal and vertical sync input.

The components of the packge—hardware, software and camera—are warranteed by the manufacturers against defects in material and workmanship for 90 days. In addition, Peripherals Plus guarantees that if you are not completely satisfied you may return the system for a prompt and courteous refund.

Order Today

The entire Dithertizer system consisting of the Dithertizer board, Sanyo camera, cables and software costs only $650 plus $6 shipping and handling in the continental United States. Customers in other loctions should write for shipping rates. Price for the board and software alone is $300 while the camera alone is $410. To order your system, send payment or Visa, MasterCard or American Express card number and expiration date to the adress below. Credit card customers may also call orders to our toll-free number.

Don't put it off. Remember, your system is backed by both manufacturer warranties and a complete moneyback guarantee of satisfaction from Peripherals Plus.

Give your Apple a new view of the world with a Dithertizer. Order today.

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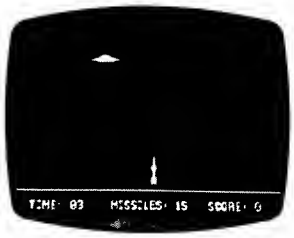
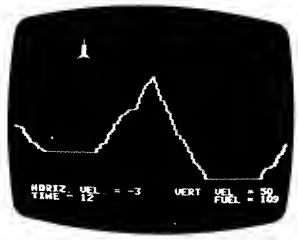
Space Games-I

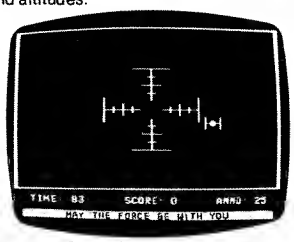
Cassette CS-4001 $11.95 4 programs Requires 16K Apple II or Apple II Plus



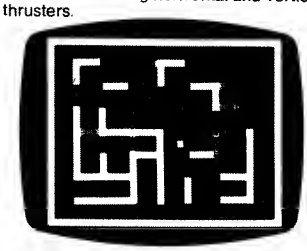
Saucer Invasion. Fire missles to destroy the invaders who fly at different speeds and altitudes.



Rocket Pilot. Maneuver your spaceship over the mountain using horizontal and vertical thrusters.



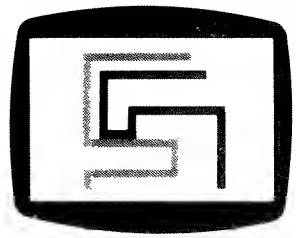
Star Wars. Shoot down as many TIE fighters as possible in 90 seconds.



Dynamic Bouncer. A colorful, ever-changing graphics demonstration.

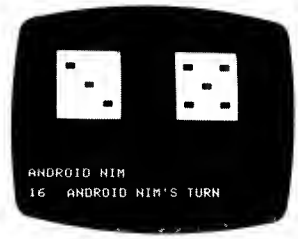
Strategy Games

Cassette CS-4003 $11.95 5 Programs Requires 16K Apple II or Apple II Plus

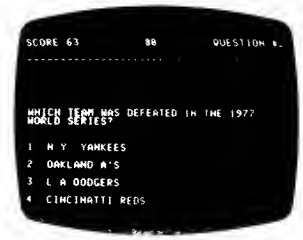


Blockade. Build a wall to trap your opponent, but don't hit anything.

UFO. Use lasers, warheads or guns to destroy an enemy spacecraft.



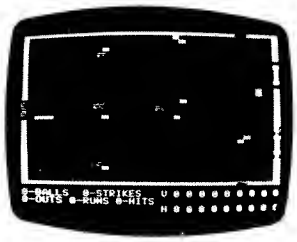
Skunk. A 2-player strategy game played with dice, skill and luck.



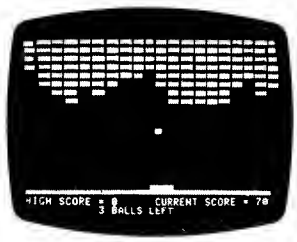
Genius. A fast-moving trivia quiz with scores of questions. **Checkers.** A computer version of an all time favorite.

Sports Games-I

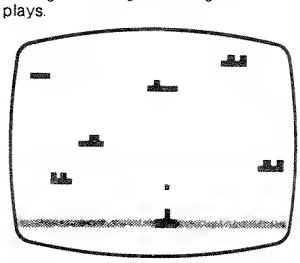
Cassette CS-4002 $11.95 4 programs Requires 16K Apple II or Apple II Plus



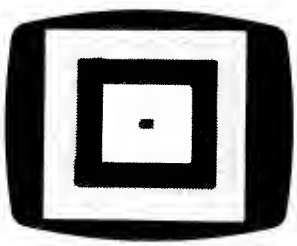
Baseball; A 2-player game with pitching, batting, fielding, stealing and double plays.



Breakout. Four skill levels and improved scoring make this the best breakout ever.



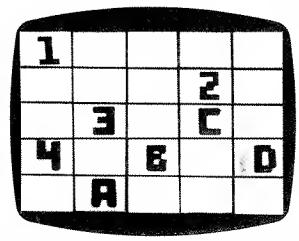
Torpedo Alley. Sink as many warships as possible in 2 minutes.



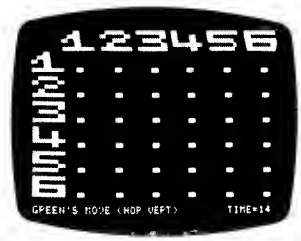
Darts. Use game paddles to control the throw of 6 darts.

Brain Games

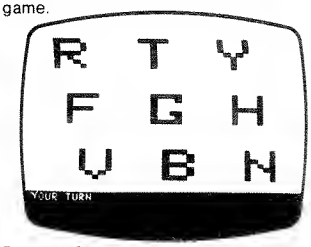
Cassette CS-4004 $11.95 7 programs Requires 16K Apple II or Apple II Plus



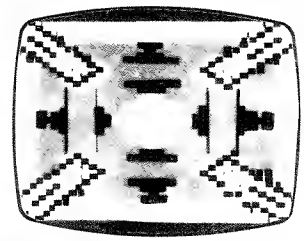
Dodgem. Be the first to move all your pieces across the board in this intriguing strategy game.



Nuclear Reaction A game of skill, fast decisions and quick reversals of position.



Parrot. A Simon-type game with letters and tones. **Dueling digits** is a version with numbers.



Midpoints and Lines. Two colorful graphics demonstrations **Tones** lets you make music and sound effects.

Space & Sports Games

Disk CS-4501, $24.95
Requires 32K Apple II or Apple II Plus

This disk contains all eight games from cassettes CS-4001 and CS-4002.

Strategy & Brain Games

Disk CS-4502, $24.95
Requires 32K Apple II or Apple II Plus

This disk contains all 12 games and programs from cassettes CS-4003 and CS-4004.

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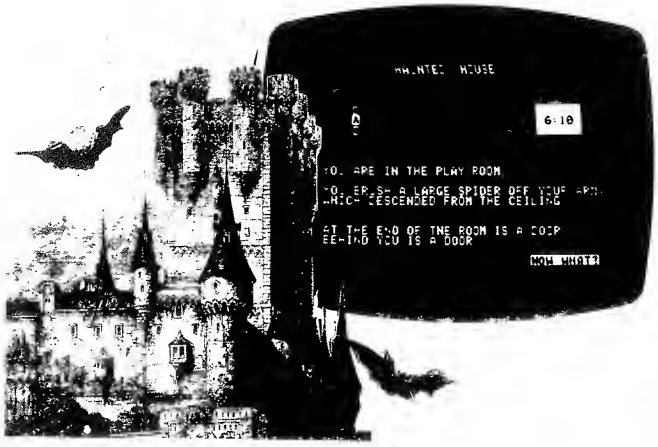
Haunted House

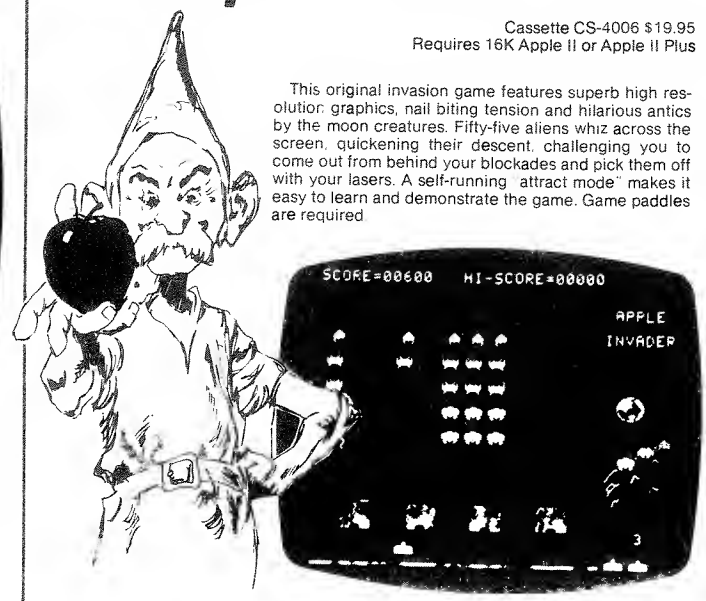
Cassette CS-4005
$11.95
Requires 16K



It's 6:00 pm and you have until midnight to find the secret passageway out of a large rambling HAUNTED HOUSE. During your search you'll encounter skeleton keys, charms, friendly ghosts, and evil spirits. Sound effects add to the eerieness. The layout changes in every game.

Super Invasion

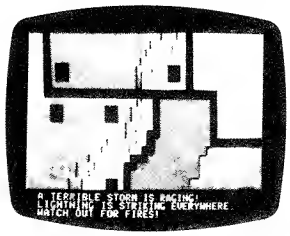
Cassette CS-4006 $19.95
Requires 16K Apple II or Apple II Plus



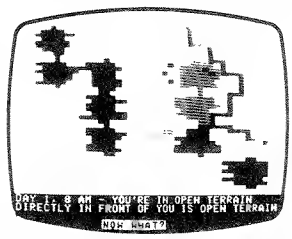
This original invasion game features superb high resolution graphics, nail biting tension and hilarious antics by the moon creatures. Fifty-five aliens whiz across the screen, quickening their descent, challenging you to come out from behind your blockades and pick them off with your lasers. A self-running "attract mode" makes it easy to learn and demonstrate the game. Game paddles are required.

Outdoor Games

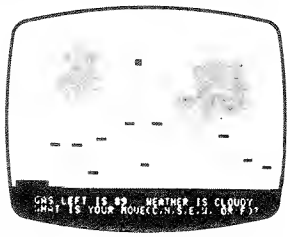
Cassette CS-4010 $14.95 4 Programs Requires 16K Apple II or Apple II Plus



Forest Fire. Use chemical retardants and backfires to control raging forest fires.



Treasure Island I. Your map shows buried treasure but unfortunately you don't know where you are. Try to find the treasure while moving about and observing your surroundings. You have a 3-day supply of food and water. You may find useful objects (compass, weapons, a horse) but watch out for hazards (robot guards, pirates, caves, crocodiles, mountain lions and more).



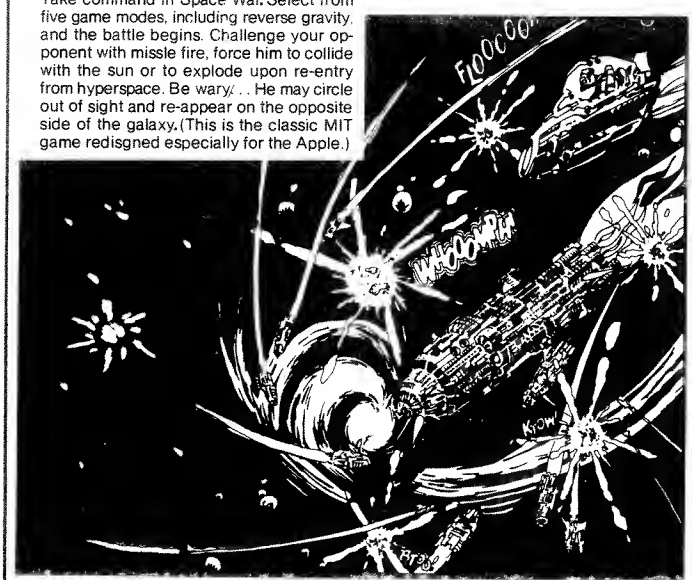
Fishing Trip. Try to catch flounder and salmon while avoiding logs, sharks, bad weather and running out of fuel.

Treasure Island II. Same game except you have to use a metal detector to find the treasure.

Space War

Cassette CS-4009 $14.95
Requires 16K
Apple II or Apple II Plus

Take command in Space War. Select from five game modes, including reverse gravity, and the battle begins. Challenge your opponent with missle fire, force him to collide with the sun or to explode upon re-entry from hyperspace. Be wary... He may circle out of sight and re-appear on the opposite side of the galaxy. (This is the classic MIT game redisgned especially for the Apple.)



Outdoor Games and Haunted House

Disk 4504, $24.95
Requires 32K Apple II or Apple II Plus

This disk contains all five programs from cassettes CS-4005 and CS-4010.

Super Invasion Space War

Disk CS-4508 $29.95
Requires 48K Apple II or Apple II Plus

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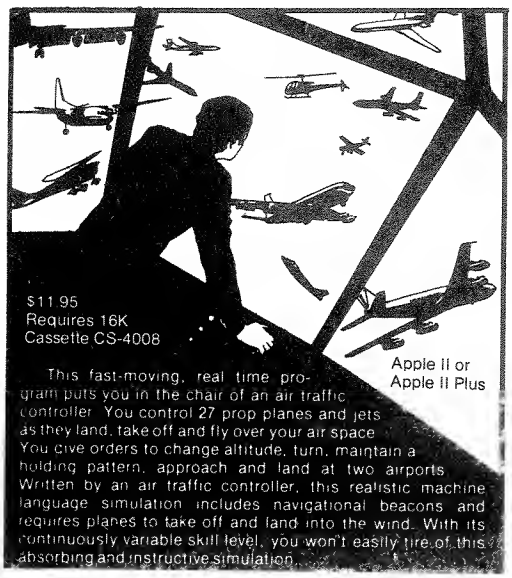
Air Traffic Controller



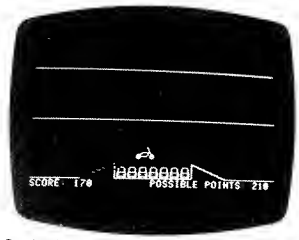
$11.95
Requires 16K
Cassette CS-4008

Apple II or Apple II Plus

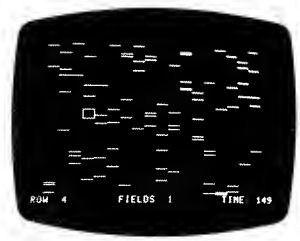
This fast-moving, real time program puts you in the chair of an air traffic controller. You control 27 prop planes and jets as they land, take off and fly over your air space. You give orders to change altitude, turn, maintain a holding pattern, approach and land at two airports. Written by an air traffic controller, this realistic machine language simulation includes navigational beacons and requires planes to take off and land into the wind. With its continuously variable skill level, you won't easily tire of this absorbing and instructive simulation.

Action Games

Cassette CS-4017 $11.95 3 Games Requires 16K Apple II or Apple II Plus



Cycle Jump. Try to jump over rows of cars, buses and trucks.

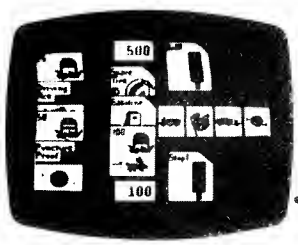


Mine Rover. Use your rover to cross a mine field with moving mines.

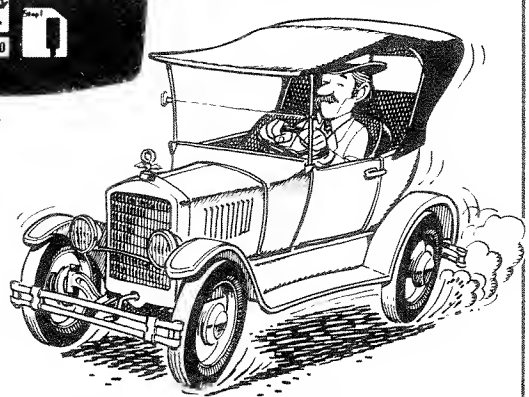
Road Machine. Drive over a curving, mountain road as fast as possible. Eight skill levels.

Milestones

Cassette CS-4015 $11.95 Requires 48K Applesoft or Apple II Plus

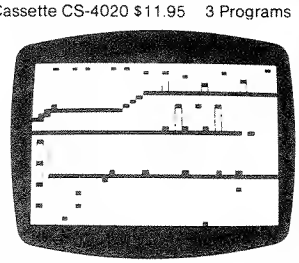


The object of Milestones is to complete a 700-mile auto trip before your opponent, the computer. You must deal with hazards of the roads: stop lights, flat tires, speed limits, accidents and gas shortages. Spectacular high-resolution color graphics.

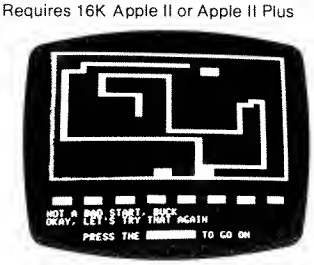


Bumping Games

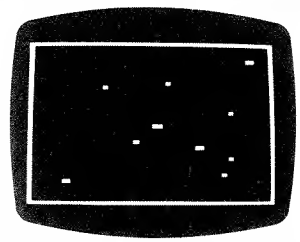
Cassette CS-4020 $11.95 3 Programs Requires 16K Apple II or Apple II Plus



Obstacle Course. This multi-level course includes hurdles, ladders, tires and penalty areas. Different every time.



Hustle. The score keeps building but the escape routes dwindle. Can you reach the blocks before they disappear?



Bumper Blocks. An absorbing game of evasion and collision. Five skill levels.

Action & Bumping Games

Disk CS-4516, $24.95
Requires 32K Applesoft or Apple II Plus
This disk contains all six games from cassettes CS-4017 and CS-4020.

Milestones

Disk CS-4515, $19.95
Requires 48K Apple II or Apple II Plus
In addition to the game itself, this disk contains the complete playing instructions.

Advanced Air Traffic Controller

Disk CS-4517, $19.95
Requires 16K Apple or Apple II Plus

This price is an advanced version of Air Traffic Controller (Cassette CS-4008) offering additional features and challenge.

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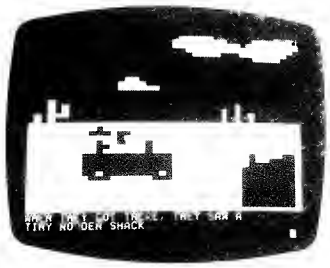
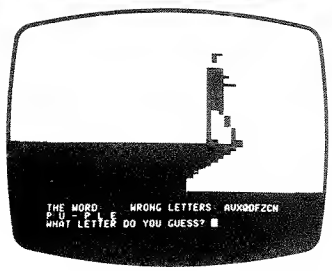
Story Time and Don't Fall

Disk CS-4702 $24.95

Requires 16K Apple II or Apple II Plus



Story Time
What's your name? Please name someone you like. What are you afraid of? Name a food you don't like. Using the answers to these questions, the computer makes up a delightful story presented with sound and full-color graphics. Over 100,000 variations are possible which incorporate different locales (desert, mountain, seashore, school yard), weather, time of day, and surprise events (find a creepy cave, haunted house, pink flying saucer and much more).



Don't Fall
Several new features make this adaptation of hangman better than ever. You can choose words from nine categories (sports, countries, etc.). Every letter you guess that is not in the words brings you one step closer to falling in the water. In the second part of each round you give the computer a word which it must guess, otherwise it falls in. Three skill levels.

Available 5/81

Know Yourself

Cassette CS-4301 $11.95

5 Programs

Requires 16K Integer Basic

Alcohol Using body weight, time drinking, and type and number of drinks the program predicts your likely behavior.

Sex Role Are you androgynous? Examine your nature, behavior and attitudes in light of society's changing concept of sex roles.

Life Expectancy The computer analyzes your responses to 20 questions and estimates your life expectancy. Find out the influence of where you live, smoking or exercise with this program.

Psychotherapy Feelings, phobias and mental health are analyzed in this program. The computer makes no judgements but helps you decide if you might benefit from a psychotherapist.

Computer Literacy 5 questions per round on history, technology and practices in the computer field.

3 Adventures

Disk CS-4513 $39.95
Requires 48K Apple II or Apple II Plus

Adventureland (by Scott Adams) You'll encounter wild animals, dwarfs and many other puzzles and perils as you wander through an enchanted world, trying to rescue the 13 lost treasures. Can you rescue the Blue Ox from the quicksand? Or find your way out of the maze of pits? Happy Adventuring!

Pirate Adventure (by Scott Adams)— Yo Ho Ho and a bottle of rum. . . You'll meet up with the pirate and his daffy bird along with many strange sights as you attempt to go from your London flat to Treasure Island. Can you recover Long John Silver's lost treasures? Happy sailing matey!

Mission Impossible Adventure (by Scott Adams)— Good Morning. Your mission is to. . . and so it starts. Will you be able to complete your mission in time? Or is the world's first automated nuclear reactor doomed? This one's well named, it's hard, there is no magic but plenty of **suspense**.

Good Luck . . .

Voodoo Castle
The Count and Ghost Town

Disk CS-4514 $39.95
Requires 48K
Apple II or Apple II Plus

Voodoo Castle (by Scott Adams). Count Cristo has had a fiendish curse put on him by his enemies. There he lies, you are his only hope . . . will you be able to rescue him—or is he forever doomed? Beware the Voodoo man.

The Count (by Scott Adams). You wake up in a large brass bed somewhere in Transylvania. Who are you, what are you doing here, and why did the postman deliver a bottle of blood? You'll love this Adventure. In fact, you might say it's Love at First Byte. . .

Ghost Town (by Scott Adams). Explore a deserted western mining town in search of 13 treasures. From rattlesnakes to runaway horses, this Adventure has them all! Just remember, pardner, they don't call them Ghost Towns for nothin'! (Also includes a new bonus scoring system.)

Adventures on Cassette

Five adventures are available singly on cassette. Each requires a 16K Apple II or Apple II Plus and costs $14.95.

CS-4011 Adventureland
CS-4012 Pirate Adventure
CS-4013 Mission Impossible
CS-4014 Voodoo Castle
CS-4021 The Count

Story Time

Cassette CS-4207, $11.95
Requires 16K Apple II or Apple II Plus

Available 5/81

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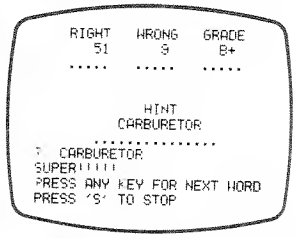
CAI Programs Vol I

Cassette CS-4201 $11.95

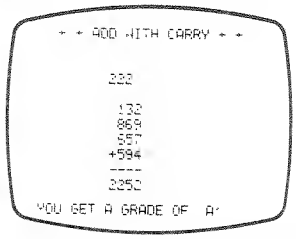
Requires 16K Apple II or Apple II Plus

U.S. Map. Identify states and their capitals.



Spelling. Study aid with your list of troublesome words.

Math Drill. Arithmetic drill and practice with large or small display.



Add With Carry. Drill and practice on sums requiring numbers to be carried.

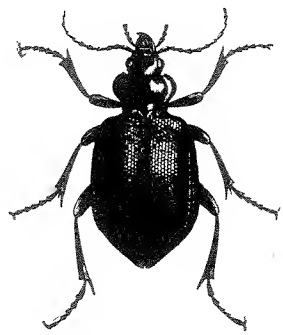
Ecology Simulations - I

Disk CS-4706, $24.95

Requires 48K Applesoft in ROM or Apple II Plus

Steri

STERL allows you to investigate the effectiveness of two different methods of pest control—the use of pesticides and the release of sterile males into a screw-worm fly population. The concept of a more environmentally sound approach versus traditional chemical methods is introduced. In addition, STERL demonstrates the effectiveness of an integrated approach over either alternative by itself.



Pop

The POP series of models examines three different methods of population projection, including exponential, S-shaped or logistical, and logistical with low density effects. At the same time the programs introduce the concept of successive refinement of a model, since each POP model adds more details than the previous one.

Tag

TAG simulates the tagging and recovery method that is used by scientists to estimate animal populations. You attempt to estimate the bass population in a warm-water, bass-bluegill farm pond. Tagged fish are released in the pond and samples are recovered at timed intervals. By presenting a detailed simulation of real sampling by "tagging and recovery," TAG helps you to understand this process.

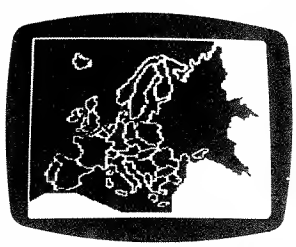
Buffalo

BUFFALO simulates the yearly cycle of buffalo population growth and decline, and allows you to investigate the effects of different heard management policies. Simulations such as BUFFALO allow you to explore "what if" questions and experiment with approaches that might be disatrous in real life.

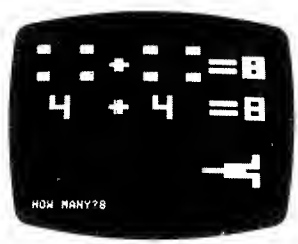
CAI Programs Vol II

Cassette CS-4202 $11.95

Requires 16K Apple II or Apple II Plus



European Map. Identify countries and their capitals.



Meteor Math. Learn math skills by destroying menacing meteors.

Music Composing Aid. Make and play your own music on the Apple. No additional hardware required. Includes a sample from Bach's Tocatta & Fugue in D minor

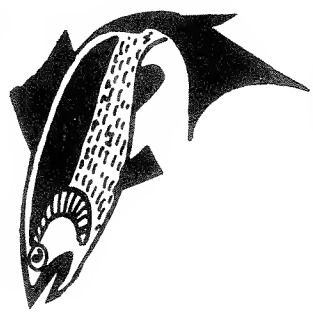
Ecology Simulations - II

Disk CS-4707 $24.95

Requires 48K Applesoft in ROM or Apple II Plus

Pollute

POLLUTE focuses on one part of the water pollution problem; the accumulation of certain waste materials in waterways and their effect on dissolved oxygen levels in the water. You can use the computer to investigate the effects of different variables such as the body of water, temperature, and the rate of dumping waste material. Various types of primary and secondary waste treatment, as well as the impact of scientific and economic decisions can be examined.



Rats

In RATS, you play the role of a Health Department official devising an effective, pratical plan to control rats. The plan may combine the use of sanitation and slow kill and quick kill poisons to eliminate a rat population. It is also possible to change the initial population size, growth rate, and whether the simulation will take place in an apartment building or an entire city.

Malaria

With MALARIA, you are a Health Official trying to control a malaria epidemic while taking into account financial considerations in setting up a program. The budgeted use of field hospitals, drugs for the ill, three types of pesticides, and preventative medication, must be properly combined for an effective control program.

Diet

DIET is designed to explore the effect of four basic substances, protein, lipids, calories and carbohydrates, on your diet. You enter a list of the types and amounts of food eaten in a typical day, as well as your age, weight, sex, health and a physical activity factor. DIET is particularly valuable in indicating how a diet can be changed to raise or lower body weights and provide proper nutrition.

CAI Programs I and II

Disk CS-4701, $24.95
Requires 32K Integer Basic

This disk contains all 7 programs from cassettes CS-4201 and CS-4202

Note: The ecology simulations programs are not available on cassette.

Stock & Options Analysis

Disk CS-4801, $99.95
Requires 32K Applesoft or Apple II Plus

This is a comprehensive set of four programs for the investment strategy of hedging listed options against common stocks. A complete description is in the TRS-80 section. Available August 1981.

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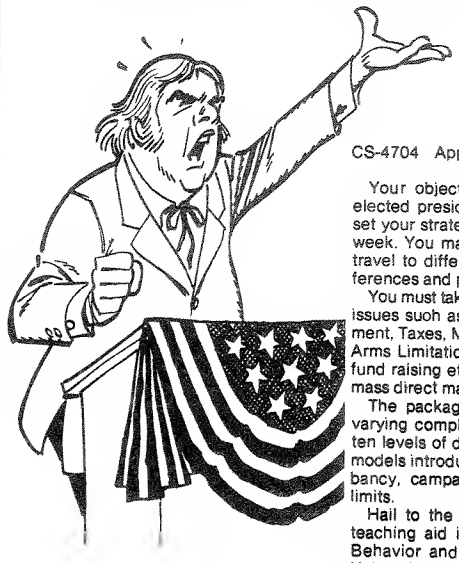
Hail to the Chief



by
Phillip W. Brashear
and
Richard G. Vance

CS-4704 Apple II Disk, 48K $24.95

Your object in this simulation is to be elected president. In your campaign you set your strategy and carry it out week by week. You may run TV or magazine ads, travel to different states, hold news conferences and participate in a debate.

You must take a position on ten campaign issues suoh as Energy Policy, Unemployment, Taxes, Mid-East Policy and Strategic Arms Limitations. You must manage your fund raising efforts to business, labor and mass direct mail solicitations.

The package includes four models of varying complexity; each can be used at ten levels of difficulty. The more complex models introduce the influences of incumbancy, campaign finance and spending limits.

Hail to the Chief has been used as a teaching aid in Political Science, Voting Behavior and Computer Science at the University level sinoe 1976. It is a well proven package which includes a comprehensive manual.

Gradebook

Disk CS-4709 $24.95 Requires 32K Applesoft or Apple II Plus

The GRADEBOOK system is a package of ten interlocking programs in APPLESOFT BASIC on a single diskette. Gradebook brings the speed and accuracy of the computer to the teacher's traditional grading and record-keeping procedures. In this process, several new capabilities emerge. Some are described below, while you will discover others for yourself as you explore this highly interactive, user-oriented system designed with the classroom teacher in mind.

1) CLASSFILE INITIATION leads you step-by-step through setting up a class file and storing it on the disk.

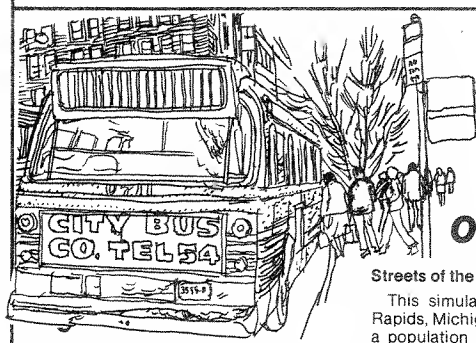
2) SCORE ENTRY uses the roster set up in CLASSFILE INITIATION to enter a class set of scores on one or more assignments.

3) SINGLE STUDENT EDITOR permits you to fill in "incompletes", correct mistakes made in SCORE ENTRY, etc.

4) CLASS ROSTER CHANGE is exactly what it sounds like.

5) RECORD CHECK first summarizes the state of the class as a whole, then lets you check on how any individual is doing.

6) STATISTICAL SUMMARY can actually be run at any time you want a detailed summary of student performance for an entire class.



Trucker and Streets of the City

CS 4710 Applesoft Disk (32K) $24.95

Trucker Available 7/81

This program simulates coast-to-coast trips by an independent trucker hauling various cargos. The user may haul oranges, freight or U.S. mail. All have different risks and rewards. Maximum profit comes from prudent risk-taking.

If all goes well, you can obey the speed limits, stop for eight hours of sleep each night and still meet the schedule. Bad weather, road construction or flat tires may put you behind schedule. You may try to increase your profit by skimping on sleep, driving fast or carrying an overweight load.

Other factors are choice of routes, truck payments, fuel, food, tolls and fines. The simulation is engrossing and informative.

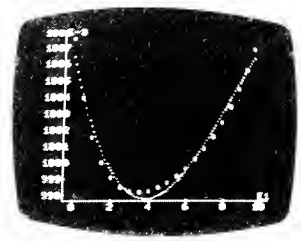
Streets of the City

This simulation is modeled on Grand Rapids, Michigan, a metropolitan area with a population of 550,000. The budgeting, cost and work standard bases are derived from actual experiences of the city over the past five years. The objective of the simulation is to complete a ten-year plan of street and transit improvements while retaining the support of a majority of the City Commission.

During your tenure, you must construct streets and Interstate highways, repair existing streets, and improve traffic safety. For the Transit Authority you have to upgrade and replace a delapidated bus fleet, increase ridership, reduce maintenance downtime and improve on-shedule performance

Other factors to be considered are operating tax levies, construction bonding and labor negotiations. The simulation provides a substantial challenge and it is both educational and entertaining.

Scientific Plotter and Curve Fitter



Scientific Plotter

Disk CS-4803, $24.95
Requires 48K Apple II Plus

Turn your Apple into a valuable and versatile laboratory tool. **Scientific Plotter** produces high-resolution graphs with ease and elegance. Data can be entered through the keyboard, from disk files, or directly from Basic subroutines. The scale and endpoints of the graph are under your control. Numeric labels are automatically added to the axes. Text labels can be placed anywhere on the screen, with horizontal or vertical orientation.

This brief description barely begins to cover the full range of this versatile graphic aid. The program can scale logarithmically, scale each axis independently, plot selectively in quadrants of the screen, plot with any of twenty symbols in four different sizes, and much more. Anyone who needs to convert data into meaningful graphs will find that **Scientific Plotter** is an invaluable aid.

Curve Fitter

Disk CS-4804, $34.95
Requires 48K Apple II Plus

Curve Fitter gives visual meaning to your data. Information can be entered through the keyboard or from disk. **Curve Fitter** can also accept information from analog instruments such as spectrophotometers or pH meters. Data can be scaled, converted to log form, or offset by a constant. Smoothing and averaging features are included in the program.

With a choice of three methods of Interpolation and three methods of least squares fitting, **Curve Fitter** can provide the best high resolution curve for any meaningful data. Once the curve has been produced, unknowns can be entered and an interpolated value will be returned.

With many user-oriented features, such as numbered axes, four selectable plotting symbols, and the ability to save all data on disk, **Curve Fitter** will prove invaluable to anyone working with data.

Disk Organizer

Disk CS-4802, $24.95 48K Apple II Plus

Tired of writing scads of disk information on tiny little labels? Let your Apple do the work with **Disk Organizer.** This utility program examines each disk, displays the number of free sectors, searches for control characters, and creates a file of your programs. The file can be sent to the screen or to a printer. And that's just the start. You can sort the file by program name, program language, or disk volume number, and search for a specific program, for all programs in a certain language, or for all programs on a specific disk. Once a file is created, it can be transferred to any disk. For those emergencies when you need to save a file and have no space on available disks, the program includes an ititialize utility. Disk organizer can save hours of time that were once wasted searching for programs.

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Educational Excellence

Excellent educational software is the exception rather than the rule.

Excellence in educational software. It's not easily achieved.

Many large publishers have entered the computer software business. Many have flopped. Why? Because producing good software is not the same as producing a textbook.

Tough Criteria

Good educational software must meet specific objectives in the teaching/learing process. It must motivate and hold the attention of the students. It must not bore the gifted students nor be over the heads of slower students. It must be "user friendly" to both the teacher and student. And it must be accompanied by clear documentation, worksheets and all the material necessary to use it effectively.

A tall order.

But one which MECC has met.

The Minnesota Educational Computer Consortium (MEEC) was founded in 1973 with the goal of extending the benefits of computers to every school in the state. Over the years, MECC has developed procedures for finding and perfecting programs from contributors throughout the state.

Few Programs Qualify

Before a program is accepted for the MECC library it is judged on ten specific criteria. For example:

1) Accuracy ... Is all spelling and grammer correct? Does each question provide for a correct and appropriate response?

2) Audience ... Is the intended audience (grade level and subject) served by the degree of difficulty and scope of the program? Is the reading level of the text material suitable?

3) Clarity ... Are explanations and instructions sufficient, clear and straight forward? Is the presentation well-formatted?

4) Graphics ... Are the graphics appropriate and sufficient in quantity?

Other criteria include documentation, function, programming, and the like. Similar criteria are applied to the documentation. This insures that the reading level is appropriate, that objectives are well-stated and that associated materials are available.

What this all means is that the educational software packages from MECC are among the best available anywhere. They are pedigogically sound, throroughly tested and well documented.

Now the MECC software library is available to both schools and individuals through Creative Computing Software.

MECC software is currently available only on disk for the Apple II. All disks run under DOS 3.2 and require a minimum of 32K memory and Applesoft in ROM or an Apple II Plus.

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Order MECC software today for the highest quality and best value in educational software available anywhere.

It is the goal of Creative Computing to convert MECC software to as many computers as possible. Our initial focus is on the Atari and TRS-80.

If you are interested in assisting in this conversion effort and have both an Apple II Plus and TRS-80 or Atari, please contact John White of Creative Computing Software, 39 E. Hanover Ave., Morris Plains, NJ 07950.

Apple Demonstration Diskette
MECC-701, $19.95

A sample of the different kinds of applications available on the MECC diskettes is shown. The software demonstrates applications in drill and practice, tutorial, simulation, problem solving, and worksheet generation. Samples from music, science, social studies, industrial arts, reading and mathematics are provided.

Elementary—Volume 1 (Mathematics)
MECC-702, $24.95

The first elementary diskette contains programs to be used in the elementary mathematics classroom. Games of logic such as BAGELS, TAXMAN, and NUMBER, drill and practice programs, such as SPEED DRILL, ROUND, and CHANGE, and programs about the metric system such as METRIC ESTIMATE, METRIC LENGTH, and METRIC 21 are included on the diskette.

Elementary—Volume 2 (Language Arts)
MECC-703, $24.95 (Available 7/81)

The teacher can enter lists of spelling words in the computer and have them used by the program SPELL, which drills students on the spelling, MIXUP which presents the word in mixed up order, or WORD FIND, which will create a word find puzzle for the teacher to duplicate. If words and definitions are entered, a CROSS WORD puzzle can be generated or a WORD GAME can be played. Two other programs included on this diskette are TALK, a program designed to introduce students to the computer or AMAZING which prints out worksheet mazes. Several programs on this diskette use a printer.

Elementary—Volume 3 (Social Studies)
MECC-704, $24.95 (Available 7/81)

The sell series, SELL APPLES, SELL PLANTS, SELL LEMONADE, and SELL BICYCLES which appears on the ELEMENTARY VOLUME 3 diskette can be used to teach elementary economics to students in grades 3-6. CIVIL will reinact battles of the CIVIL war while STATES and STATES2 provide drill and practice on the location of states in the U.S. and their capitals.

Elementary—Volume 4 (Mathematics And Science)
MECC-705, $24.95

Two mathematics programs ESTIMATE and MATHGAME provide reinforcement on estimating and basic facts. Food chains in fish can be studied through ODELL LAKE while ODELL WOODS deals with food chains in animals. SOLAR DISTANCE teaches the concepts or distances in space and URSA provides a tutorial on constellations.

Elementary—Volume 5 (Language Arts)
MECC-719, $24.94 (Aailable 7/81)

ELEMENTARY—VOLUME 5 deals with the reading concept of prefixes. The diskette contains five lessons which both teach the prefixes of UN, RE, DIS, PRE, and IN. Two review drils, DRAGON FIRE and PRE-APP II, are also contained on the diskette.

Elementary—Volume 6
MECC-725, $24.95 (Available 7/81)

Historical simulations, OREGON, VOYAGEUR and FURS are included in the ELEMENTARY—VOLUME 6 diskette. Along with these programs are NOMAD which teaches map reading and SUMER.

Special Needs—Volume 1 (Spelling)
MECC-727, $24.95 (Available 7/81)

This diskette is designed to drill handicapped students on frequently misspelled primary and intermediate words. Students answer problems by either using the game buttons, the game paddles or any key on the keyboard.

Science—Volume 2 (Senior High)
MECC-709, $24.95 (Available 7/81)

Many of the programs on this diskette were developed by Minnesota teachers. PEST, which deals with the use of pesticides, and CELL MEMBRANE which the user takes the part of a cell membrane, can be used in biology classes. SNELL plots light refraction demonstrating SNELL's law while COLLIDE simulates the collision between two bodies. DIFFUSION deals with the diffusion rates of various gasses, NUCLEAR SIMULATION shows radioactive decay of nine different radioisotopes, ICBM and RADAR teach angles and projections on a coordinate system.

Science—Volume 3 (Middle School)
MECC-707, $24.95 (Available 7/81)

The FISH program through the use of low resolution graphics show the circulatory system of a fish. Simulations like ODELL LAKE which is used to explore food chains, URSA which teaches about constellations, and QUAKES which simulates earthquakes are on the diskette. MINERALS can be used in the area of earth science to identify 29 minerals by having students perform simple tests.

Mathematics—Volume 1 (Senior High)
MECC-706, $24.95 (Available 7/81)

BAGELS, SNARK, ICBM, and RADAR will teach students logic while reinforcing the concepts of plotting prints or angle measurements ALEGBRA provides a drill and practice in solving equations. Three programs on the diskette can be used in plotting equations on a grid: SLOPE which is designed for use in ninth grade with linear functions, POLYGRAPH which will plot any equation on a rectangular coordinate system, and POLAR which graphs functions on polar coordinates.

Aestheometry—Volume 1
MECC-716, $24.95 (Available 7/81)

AESTHEOMETRY deals with the topic of curve sketching by introducing and demonstrating the "space concepts" of elliptical, parabolic and hyberbolic curves. Curve sketching designs are developed to provide an aesthetic view of geometric shapes.

Teacher Utilites—Volume 1
MECC-715, $24.95 (Available 7/81)

The TEACHER UTILITIES diskette is designed to aid the teacher and would not be used by the student unless the teacher creates questions using the REVIEW program. This program allows the teacher to set up a list of questions which can be used either by the REVIEW program or the TEST GENERATOR program. The teacher can also make CROSS WORD puzzles, WORD FIND puzzles, BLOCK LETTER banners and POSTERS using this program. FREQUENCY and PERCENT can be used to calculate grades and to do statistical analysis. A printer is needed for some of the programs on this diskette.

Programmer's Aid—Volume 1
MECC-720, $32.95 (Available 7/81)

The PROGRAMMER's AID diskette provides help for the programmer. Programs to be able to UPLOAD and DOWNLOAD to the MECC system, programs that work with text files including FP TO TEXT, RANDOM EDITOR, SEQUENTIAL EDITOR, and TEXT LIST along with programs to work with binary files, BINARY FILE INFO, BINARY FILE TO FP are included. Two programs TABLES and MERGE allow the user to create, change and merge graphic shapes for use in a program. FREE SPACE will tell the amount of space on the diskette while HIDDEN CHARACTERS will locate contol character. STARTER will put standard routines such as space bar, music, graphic characters or input into a user's program which is just being created or already created.

MICAS—Volume 1
MECC-721, $32.95 (Available 7/81)

Microcomputer Integrated Computerized Accounting System requires dual disks and 132 characters width printer. The MICAS computerized accounting system provides a realistic experence with automated accounting systems. The package consists of four integrated systems: (1) general ledger, (2) accounts payable, (3) accounts receivable, and (4) inventory control.

Shape Tables—Volume 1
MECC-724, $24.95 (Available 7/81)

The SHAPE TABLES diskette includes 12 files of 187 shapes that can be incorporated in a user's program. Also included are aids needed to work with shape tables.

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Brain Games

Cassette CS-6002 $11.95 — 3 Programs

Dueling Digits. Repeat a sequence of numbers selected by the computer. How far can you get? Includes sound effects.

Parrot. Dueling Digits using letters instead of numbers. Much harder. How good are you?

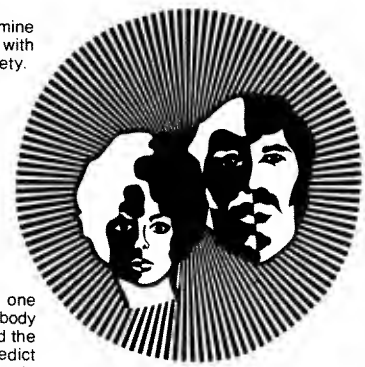
Darts. Consider the wind and throw your dart.

Know Yourself

Cassette CS-6301 $11.95 — 3 Programs

Psychoanalysis. Your feelings, phobias, and mental health are analyzed and explained by the computer.

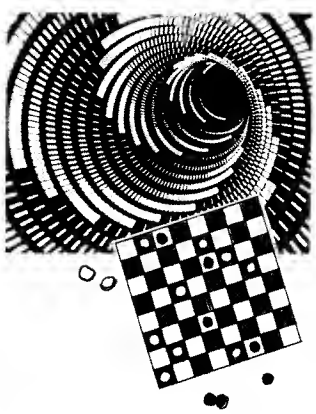
Sex Roles. Are you androgynous? Examine your nature, behaviour, and attitudes with reference to changing sex roles in society.



Alcohol and Behavior. How many is one too many? The computer analyzes your body weight, the time you are drinking, and the number and type of your drinks to predict your likely behavior. Don't leave the party without it!

Strategy Games

Cassette CS-6003 $11.95 — 4 Programs



Blockade. A challenging war of dexterity and quick thinking for two persons. Trap your opponent with a moving wall.

Tunnel Vision. Play this before visiting the Minotaur! You are lost in a maze, with a three dimensional view of your surroundings.

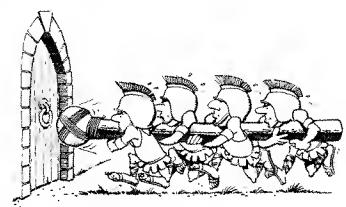
Checkers. Can you beat the mechanical mind of the computer?

Depth Charge. Use logic to outwit the sub commander and sink him before he sinks you!

Strategy and Brain Games

Diskette CS-6501 $24.95

7 Programs Require TI 99/4 Disk



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Parrot. Dueling Digits using letters instead of numbers. Much harder. How good are you?

Darts. Consider the wind and throw your dart.

Important Note: All software packages for the TI 99/4 are expected to be released in July 1981. Customers may order these packages in advance, however, these orders will not be shipped until July.

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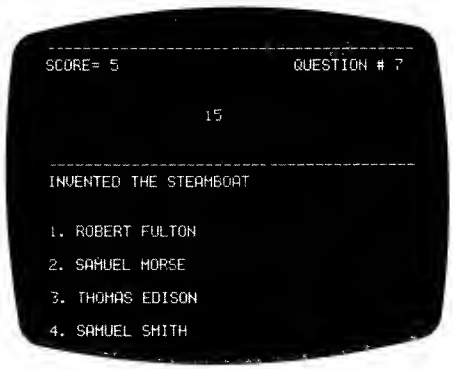
Trivia Unlimited

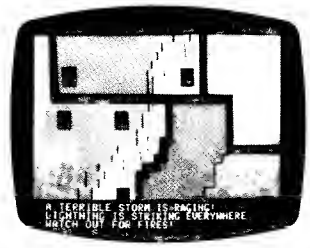
Cassette CS-7001 $11.95 Requires 24K



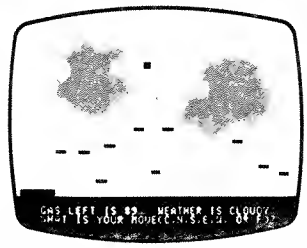
Test your expertise in any of seven areas: science, geography, history, computers, TV and movies, English language, or trivia. Speed and number of correct answers determine your score in this challenging series of multiple-choice quizzes. Over 200 questions in all.

Outdoor Games

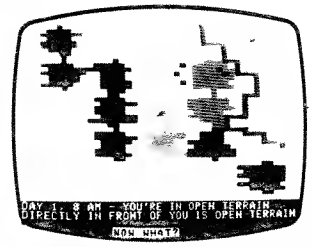
Cassette CS-7002 11.95 4 Programs Cassette CS-7002 (32K) $11.95



Forest Fire. Use chemical retardants and backfires to control raging forest fires.



Fishing Trip. Try to catch flounder and salmon while avoiding logs, sharks, bad weather and running out of fuel.

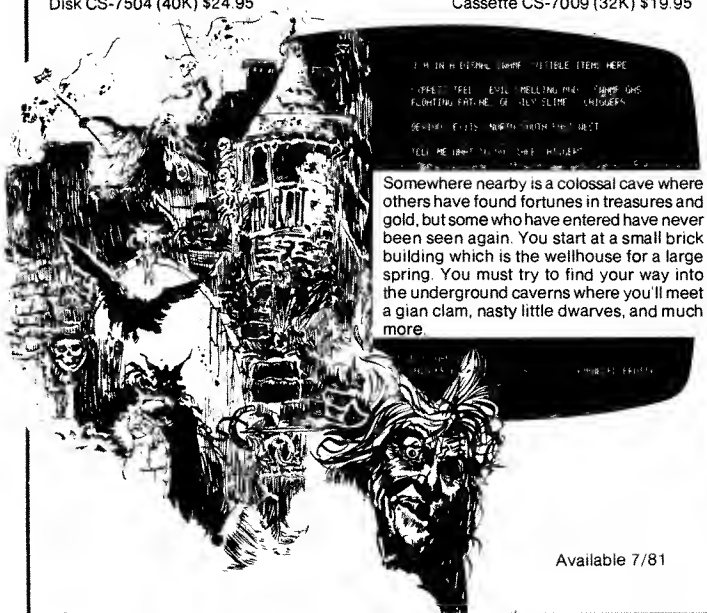


Treasure Island I. Your map shows buried treasure but unfortunately you don't know where you are. Try to find the treasure while moving about and observing your surroundings. You have a 3-day supply of food and water. You may find useful objects (compass, weapons, a horse) but watch out for hazards (robot guards, pirates, caves, crocodiles, mountain lions and more).

Treasure Island II. Same game except you have to use a metal detector to find the treasure.

Original Adventure

Disk CS-7504 (40K) $24.95 Cassette CS-7009 (32K) $19.95



Somewhere nearby is a colossal cave where others have found fortunes in treasures and gold, but some who have entered have never been seen again. You start at a small brick building which is the wellhouse for a large spring. You must try to find your way into the underground caverns where you'll meet a gian clam, nasty little dwarves, and much more.

Available 7/81

Haunted House

Cassette CS-7003 $11.95 Requires 32K

It's 6:00 pm and you have until midnight to find the secret passageway out of a large rambling HAUNTED HOUSE. During your search you'll encounter skeleton keys, charms, friendly ghosts, and evil spirits. Sound effects add to the eerieness. The layout changes in every game.

Trivia Unlimited

Disk CS-7501 (16K) $19.95

This is a menu driven version of CS-7001.

Hail to the Chief

Disk CS-7701 (40K) $24.95
Cassette CS-7201 (32K) $24.95

This comprehensive election simulation is described completely in the Apple software section.

Outdoor Games & Haunted House

Disk CS-7502 (40K) $19.95

This disk contains all five programs from cassettes CS-7002 and CS-7003.

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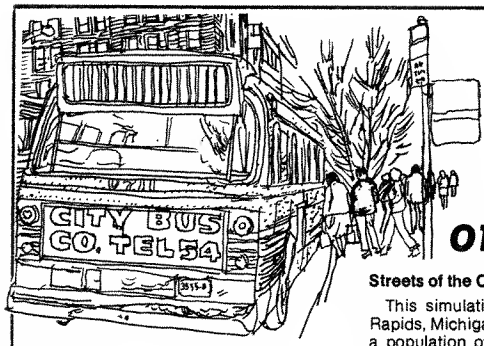


Trucker and Streets of the City

CS-7707 Atari Disk (40K) $24.95

Available 7/81

Trucker

This program simulates coast-to-coast trips by an independent trucker hauling various cargos. The user may haul oranges, freight or U.S. mail. All have different risks and rewards. Maximum profit comes from prudent risk-taking.

If all goes well, you can obey the speed limits, stop for eight hours of sleep each night and still meet the schedule. Bad weather, road construction or flat tires may put you behind schedule. You may try to increase your profit by skimping on sleep, driving fast or carrying an overweight load.

Other factors are choice of routes, truck payments, fuel, food, tolls and fines. The simulation is engrossing and informative.

Streets of the City

This simulation is modeled on Grand Rapids, Michigan, a metropolitan area with a population of 550,000. The budgeting, cost and work standard bases are derived from actual experiences of the city over the past five years. The objective of the simulation is to complete a ten-year plan of street and transit improvements while retaining the support of a majority of the City Commission.

During your tenure, you must construct streets and Interstate highways, repair existing streets, and improve traffic safety. For the Transit Authority you have to upgrade and replace a delapidated bus fleet, increase ridership, reduce maintenance downtime and improve on-shedule performance

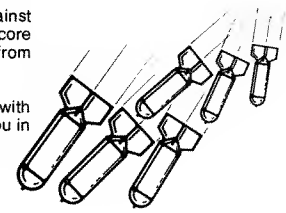
Other factors to be considered are operating tax levies, construction bonding and labor negotiations. The simulation provides a substantial challenge and it is both educational and entertaining.

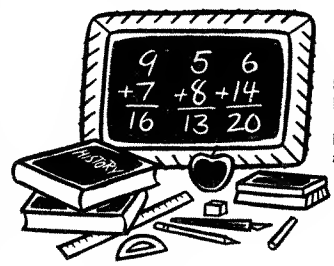
Math Games

Cassette CS-7005 $14.95 4 Programs Requires 16K Atari 400/800

Darts. How's your aim? Compete against the clock to solve addition problems to score points on the dart board. Skill levels from easy to hard.

Bomber Dynamic graphics help you with your fractions. Correct answers put you in an explosive situation!





Snoopy. Can you solve the math problems before the Red Baron shoots you down?

Easy Math. Keep your computer smiling and you learn your arithmetic.

Available 7/81

Pub Games and Cribbage

Diskette CS-7507 $24.95 3 Programs Requires 32K Atari 800

Tilt. A two player game in which each player must move three balls into any of the five pockets in a maze.

Cribbage. A fast one player game of cribbage. Set your skills against the computer's strategy.

Dominos. This one player game has two versions and four skill levels. Fast action and great graphics.

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Pub Games

Cassette CS-7007 (24K) $11.95
Includes Tilt and Dominos.

Available 7/81

Cribbage

Cassette CS-7008 (24K) $11.95

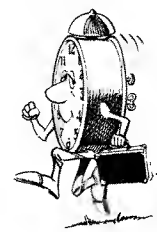
Available 7/81

Chase Games

Cassette CS-7008 $11.95 4 Programs Requires 16K Atari 800

Obstacle Course. Test your reactions and compete against the clock as you move and capture pieces through and around all obstacles.

Chase. Can you elude your pursuer? Two players take turns chasing each other through a field of obstacles. You get points for the time it takes to catch the pursued in each of several rounds.



Snake. Control the snake as it wriggles across the screen, keeping away from head on crashes and your opponents snake. Fast action and sound.

Tank. A two player game with several game options, including tunnels. You must move your laser tank between mines, trees, and walls to pursue and zap your opponent.

Available 7/81

Advanced Air Traffic Controller

Cassette CS-7004 (8K) $14.95
Disk CS-7503 (24K) $19.95

In this popular, fast-moving simulation you must successfully control the flight paths of 27 aircraft as they take off, land and fly over your airspace.

Available 7/81

Math & Chase Games

Disk CS-7505 (24K) $24.95

This disk contains all of the programs from cassette CS-7005. Math Games, and CS-7006, Chase Games.

Available 7/81

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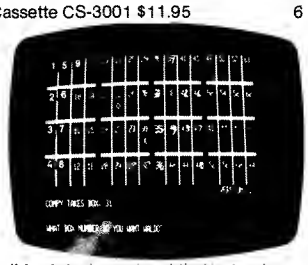
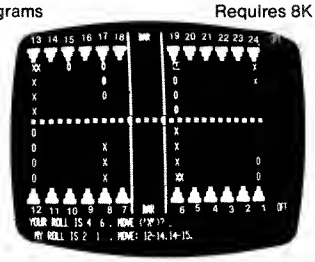
Board Games

Cassette CS-3001 $11.95 — 6 Programs — Requires 8K



Quibic. A three-dimensional tic-tac-toe type of game played in a 4x4x4 cube. A real challenge.



Backgammon. (by Scott Adams). Excellent graphics and challenging play in this popular game.

Flip Disc. Our version of Othello with three skill levels from good to expert.

Mugwump. Four friendly Mugwumps are hiding on a 10x10 grid. Can you find them all in ten moves?

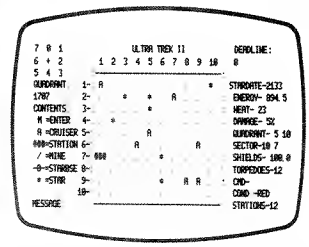
Wumpus. Try to find the Wumpus in a dodecahedron network of caves complete with bottomless pits and giant bats.

Wumpus 2. Five different types of caves or create your own. More hazards too.

Space Games

Cassette CS-3002 $11.95 — 4 Programs — Requires 8K

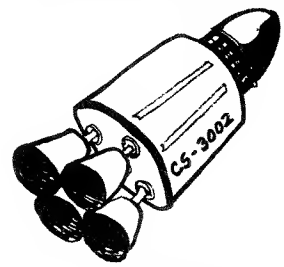
Star Lanes. The ultimate game of intergalactic commerce and trade for earthbound entrepreneurs.



Ultra Trek. Battle klingons with lasers, torpedoes and mines in this real-time game with action graphics.

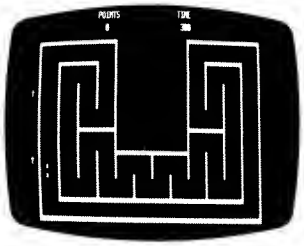
Romulan. Use your sensors to find the hidden Romulan spacecraft and then destroy it.

Star Wars. Line up the TIE fighters in your sights and zap them. It's not easy.

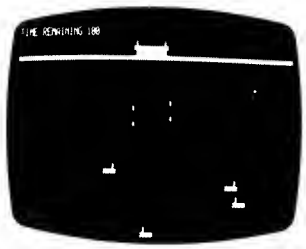


Pursuit Games

Cassette CS-3004 $11.95 — 5 Programs — Requires 16K



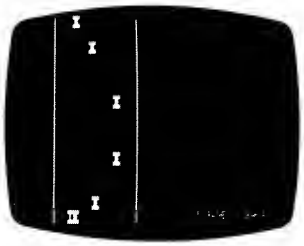
Stock Car Race. Real-time road racing game around a complex track. Don't blow your engine.



Depth Charge. Move your ship and drop charges to destroy as many subs as possible.

Maze. Nine skill levels in this high-speed pursuit game.

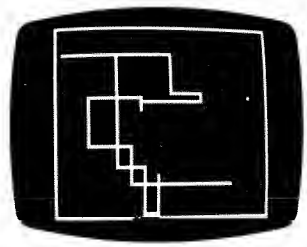
Kaleidoscope. A ever-changing graphics demonstration.



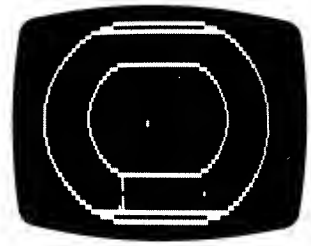
Indy Racer. Real-time with gear changing similar to the popular arcade game.

Strategy Games

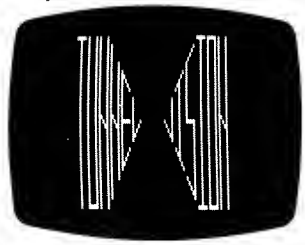
Cassette CS-3005 $11.95 — 5 Programs — Requires 16K



Evasion. Try to escape from the snake. It's not easy.



Motor Racing. Real-time racing action and excellent graphics with your choice of tracks.



Tunnel Vision. Find your way out of a maze given only a mouse-eye view.

Jigsaw. Use reasoning and luck to fit your pieces into the puzzle.

The Masters. Choose your club and go from tee to green on each hole.

Games Pack on Disk

Disks CS-3503 (32K) $39.95

This set of menu-driven disk contains all 20 games from cassettes CS-3001, CS-3002 CS-3004 and CS-3005.

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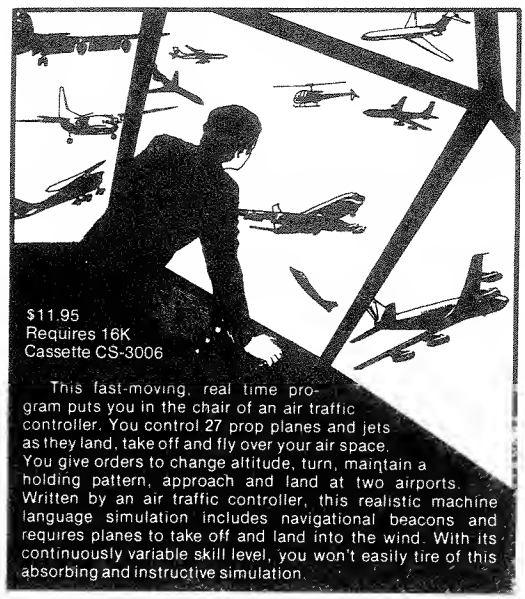
Air Traffic Controller

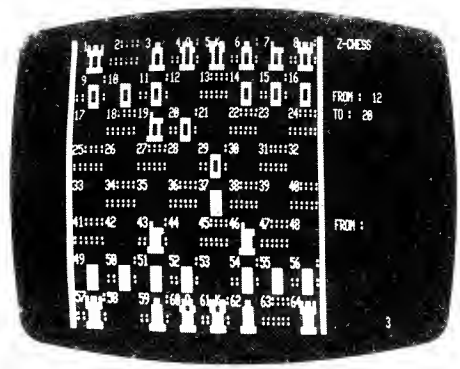


$11.95
Requires 16K
Cassette CS-3006

This fast-moving, real time program puts you in the chair of an air traffic controller. You control 27 prop planes and jets as they land, take off and fly over your air space. You give orders to change altitude, turn, maintain a holding pattern, approach and land at two airports. Written by an air traffic controller, this realistic machine language simulation includes navigational beacons and requires planes to take off and land into the wind. With its continuously variable skill level, you won't easily tire of this absorbing and instructive simulation.

Z-Chess II

Cassette CS-3017 $19.95 Requires 16K



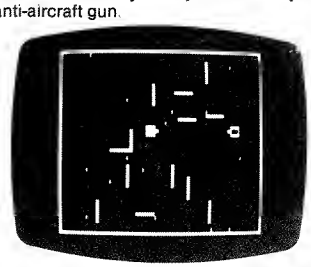
This is one of the most sophisticated computer chess playing programs available today. Seven different skill levels provide practice for the beginner as well as challenge the more experienced players. The speed of Z-Chess will also surprise you. Even at the highest skill level it is one of the fastest chess programs available.

Battle Games

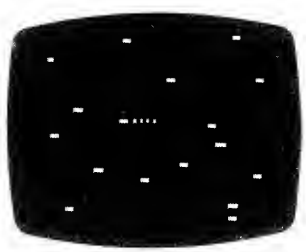
Cassette CS-3012 $11.95 4 Programs Requires 16K

GUNNER. Destroy enemy aircraft with your anti-aircraft gun.

SUB HUNT. Pursue and destroy a computer-controlled submarine.



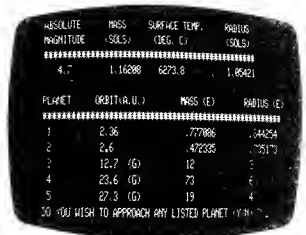
TANK BATTLE. Two players battle it out in this real-time graphic game.



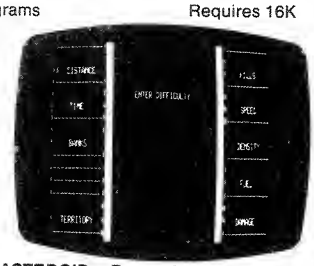
GETACROSS. Evade the enemy in this real-time, sound game.

Deep Space Games

Cassette CS-3013 $19.95 3 Programs Requires 16K



SPACE LIFEBOAT. Can you find a suitable planet for the survivors of a space accident?



ASTEROID. Escape from enemy space in a small but powerful ship in this machine language game.

GALAXY 1. Secure your solar system before the enemy threat arrives.

Advanced Air Traffic Controller

Disk CS-3519 (16K) $19.95

This is an advanced version of Air Traffic Controller (Cassette CS-3006) offering additional features and challenge. Available June 1981.

Z-Chess on Disk

Disk CS-3513 (32K) $24.95

This is a disk version of cassette CS-3017.

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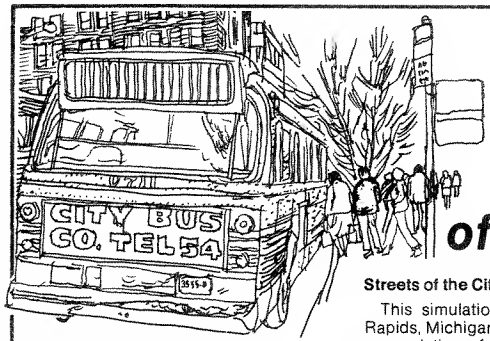


Trucker and Streets of the City

CS-3207 TRS-80 Cassette (32K)
CS-3703 TRS-80 Disk (32K) $24.95

Trucker

This program simulates coast-to-coast trips by an independent trucker hauling various cargos. The user may haul oranges, freight or U.S. mail. All have different risks and rewards. Maximum profit comes from prudent risk-taking.

If all goes well, you can obey the speed limits, stop for eight hours of sleep each night and still meet the schedule. Bad weather, road construction or flat tires may put you behind schedule. You may try to increase your profit by skimping on sleep, driving fast or carrying an overweight load.

Other factors are choice of routes, truck payments, fuel, food, tolls and fines. The simulation is engrossing and informative.

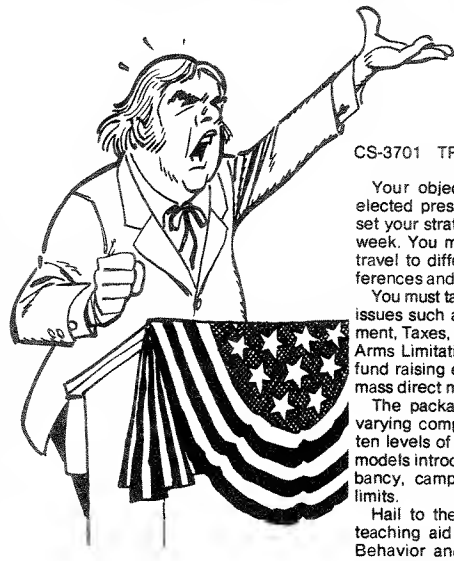
Streets of the City

This simulation is modeled on Grand Rapids, Michigan, a metropolitan area with a population of 550,000. The budgeting, cost and work standard bases are derived from actual experiences of the city over the past five years. The objective of the simulation is to complete a ten-year plan of street and transit improvements while retaining the support of a majority of the City Commission.

During your tenure, you must construct streets and Interstate highways, repair existing streets, and improve traffic safety. For the Transit Authority you have to upgrade and replace a delapidated bus fleet, increase ridership, reduce maintenance downtime and improve on-shedule performance

Other factors to be considered are operating tax levies, construction bonding and labor negotiations. The simulation provides a substantial challenge and it is both educational and entertaining.

Hail to the Chief



by
Phillip W. Brashear
and
Richard G. Vance

CS-3701 TRS-80 Disk, 48K $24.95

Your object in this simulation is to be elected president. In your campaign you set your strategy and carry it out week by week. You may run TV or magazine ads, travel to different states, hold news conferences and participate in a debate.

You must take a position on ten campaign issues such as Energy Policy, Unemployment, Taxes, Mid-East Policy and Strategic Arms Limitations. You must manage your fund raising efforts to business, labor and mass direct mail solicitations.

The package includes four models of varying complexity; each can be used at ten levels of difficulty. The more complex models introduce the influences of incumbancy, campaign finance and spending limits.

Hail to the Chief has been used as a teaching aid in Political Science, Voting Behavior and Computer Science at the University level since 1976. It is a well proven package which includes a comprehensive manual.

3 Adventures

Disk CS-3516 $39.95
Requires 32K

Adventureland (by Scott Adams) You'll encounter wild animals, dwarfs and many other puzzles and perils as you wander through an enchanted world, trying to rescue the 13 lost treasures. Can you rescue the Blue Ox from the quicksand? Or find your way out of the maze of pits? Happy Adventuring!

Pirate Adventure (by Scott Adams)— Yo Ho Ho and a bottle of rum... You'll meet up with the pirate and his daffy bird along with many strange sights as you attempt to go from your London flat to Treasure Island. Can you recover Long John Silver's lost treasures? Happy sailing matey.

Mission Impossible Adventure (by Scott Adams)— Good Morning. Your mission is to... and so it starts. Will you be able to complete your mission in time? Or is the world's first automated nuclear reactor doomed? This one's well named: its hard: there is no magic but plenty of **suspense**.

Good Luck

Voodoo Castle
The Count and Ghost Town

Disk CS-3517 $39.95
Requires 32K

Voodoo Castle (by Scott Adams). Count Cristo has had a fiendish curse put on him by his enemies. There he lies, you are his only hope . . . will you be able to rescue him—or is he forever doomed? Beware the Voodoo man.

The Count (by Scott Adams). You wake up in a large brass bed somewhere in Transylvania. Who are you, what are you doing here, and why did the postman deliver a bottle of blood? You'll love this Adventure. In fact, you might say it's Love at First Byte. . .

Ghost Town (by Scott Adams). Explore a deserted western mining town in search of 13 treasures. From rattlesnakes to runaway horses, this Adventure has them all! Just remember, pardner, they don't call them Ghost Towns for nothin'. (Also includes a new bonus scoring system.)

Original Adventure

Disk CS-3518 (48K) $19.95

This is the original adventure game complete with a colossal cave populated with nasty little dwarves, a giant clam, trools and much, much more. Includes the SAM76 language in which the game runs.

Adventures on Cassette

Five adventures are available separately on cassette. Each requires 16K and costs $14.95.

CS-3007 Adventureland
CS-3008 Pirate Adventure
CS-3009 Mission Impossible
CS-3010 Voodoo Castle
CS-3011 The Count

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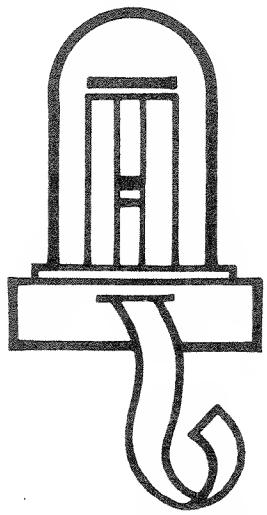
Stock & Options Analysis

Cassette CS-3306 (16K), $99.95
Disk CS-3801 (32K), $99.95



Should you hedge, buy, or sell out? **Stock and Options Analysis** puts a securities advisor in your computer, providing you with four powerful investment tools. **Option** gives important indices for opening and closing call option transactions. **Opgraph** presents a graph or table of profit for any combination of long or short calls, puts, and stocks. This allows the detailed evaluation of three types of hedges. **Newprem** helps predict the future premiums of an option at any desired time and future stock price. **Portval** lets the computer do the paper work, providing full portfolio services, including value per share, current value, and capital gain. The program includes the effects of commissions, margin interest and dividends. Beyond helping to organize and evaluate your present portfolio, **Stock and Options Analysis** is an excellent aid for planning and testing future strategies. The comprehensive 24-page manual with this package not only shows how the programs work, but is also a primer on the strategy of hedging listed options against common stocks. This strategy has been repeatedly shown to actually be more conservative and more consistently profitable than straight buying and selling of stocks.

Solar Energy Analysis

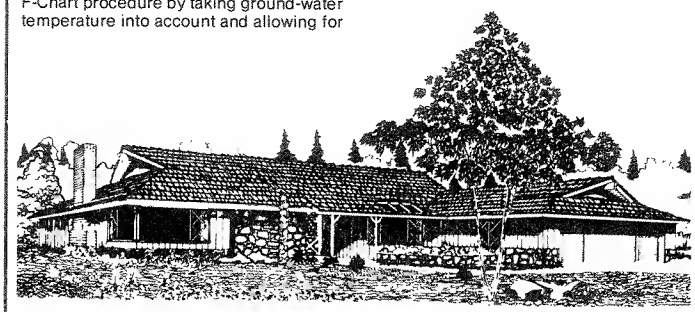
Cassette CS-3307 (16K), $49.95
Disk CS-3802 (32K) $99.95

Available 7/81

F-Chart Solar Energy Analysis eliminates many of the tedious calculations required when designing solar-heating systems. Beyond providing a thermal analysis, the program allows designers to quickly determine the effects of changing any specifications, allowing fast, accurate, and inexpensive experimentation.

Systems using air, liquid, or domestic hot water in any climate can be analyzed in detail. The program expands the traditional F-Chart procedure by taking ground-water temperature into account and allowing for mixing valves in domestic hot water systems. **F-Chart Solar Energy Analysis** quickly pays for itself by freeing you from time-consuming calculations.

The disk version of the program includes a data base of all necessary climatic data for any location in the United States. These data are in the printed booklet included with the cassette version but must be entered manually for your geographic location.

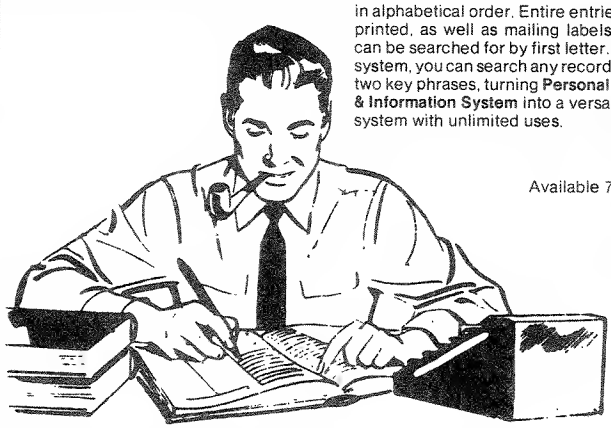


Personal Address and Information System

Disk CS-3509 (32K) $24.95

Is your address book beginning to resemble a heavily-edited inkblot? Do your friends keep moving, forcing you to cross out and rewrite addresses and phone numbers? Let the **Personal Address & Information System** turn filing drudgery into computing pleasure. You can store all the crucial information, including name, address, home and work phone numbers, spouse's name, and comments or remarks. At any time, the information can be edited or changed.

And there's more. Names can be sorted in alphabetical order. Entire entries can be printed, as well as mailing labels. Names can be searched for by first letter. In a 32K system, you can search any record for up to two key phrases, turning **Personal Address & Information System** into a versatile filing system with unlimited uses.



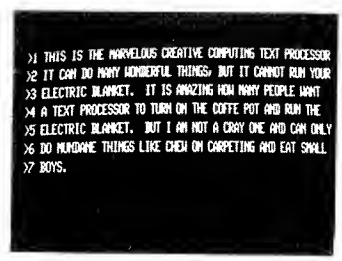
Available 7/81

Text Processing

Cassette CS-3302 (16K) $14.95

CS-3504 Disk (32K) $24.95
(Disk includes Checking Account, CS- 3304)

This program turns a 16K, TRS-80 and lineprinter into a line oriented text-processing system.



Developed exclusively for the TRS-80 this program lets you use the computer to enter general text or business letters, edit and modify your work, save text on cassette tapes, and print out a perfect report, document, or letter every time.

Editing commands are similar to those used in Level II BASIC, so there are no complicated new commands to learn. Lines may be either inserted or deleted. A special format is available to speed entry of business letters. Final printout can be done in numbered pages and you may print multiple copies.

Business Address & Information System

Disk CS-3510 (48K) $24.95 Available 7/81

Do you need quick access to business contacts and customers? Put more organization in your organization with the **Business Address & Information System**. A complete file containing company name, address, phone number, and comments can be quickly entered and stored. Information can be changed or edited whenever necessary. The program allows entire entries to be printed, and can also generate mailing labels.

When you need information fast, you can search for specific names or find all entries that contain one or two key phrases. Any key phrases can be used. **Business Address & Information System** will help you make the most of your time, putting the routine work in the computer where it belongs.

Order Today

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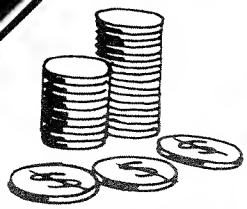
TRS-80 LEVEL II



Investment Analysis

CS-3305 Cassette (4K) $24.95

This program was originally developed for personal use by an investment specialist. Creative Computing Software now makes this package available for you to analyze your investments and investment decisions. Programs in this package include regression analysis, stock market simulations, market/stock values, risk analysis, time related investments, and tax analysis.

Checking Account

CS-3304 Cassette (16K) $11.95
CS-3504 Disk (32K) $24.95
(Disk includes Text Processing, CS-3302)

This program does not replace the standard method of checkbook balancing. Instead it acts as an aid in keeping track

of individual and monthly expenses. You enter the amounts and payees of individual checks, and save the information on cassette tape. The program then allows you to analyze your checks by payee or date of payment. Keep track of where your money is going and how effective your budget is.

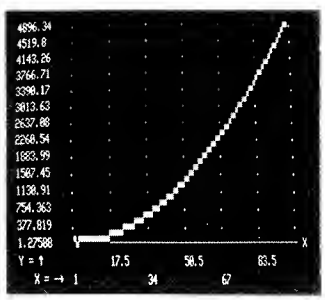
Graphic Package

CS-3301 Cassette (16K) $11.95

This package provides a variety of interesting and useful graphing routines. Graphing Package combines text and TRS-80 graphics to plot a variety of functions and other graphs.

1. Bar Graph

Bar Graph plots graphs for up to six different categories. An optional display does conversion to a line graph.

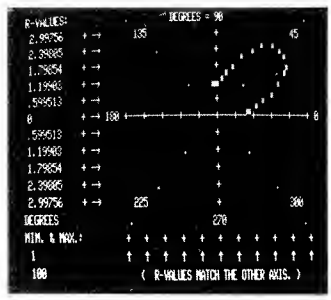


2. Cartesian Coordinate Graphing

This program plots a standard X, Y graph from a user entered function. A special feature of this program automatically scales of the Y-axis.

3. Polar Coordinate Graphing

Rarely found in computer graphing packages, this polar



graphing program provides plots of polar functions. The program labels all axes, features automatic scaling, and lets you input the range and increment of the plot. A unique and valuable program.

4. Parametric Graphing

Parametric functions are functions in which both x and y are expressed in terms of an independent variable t. The resulting graph is X vs. Y. This program allows the user to input two parametric functions and produces a graph.

5. Linear and Parabolic Regression

These two programs are used for data analysis which can later be entered into the graphing routines. Regression routines analyze how well a series of points fit on a linear or quadratic function.

Tape Manager and Advanced Statistics

CS-3303 Cassette (16K) $24.95

CS-3505 Disk (32K) $24.95

This package may be the ultimate in statistical applications for the 16K TRS-80. Attractively packaged in a vinyl binder with a large instruction booklet, Advanced Statistics will provide you with the ability to perform statistical tests never before available on small computers. Its cassette based data file system allows you to store, retrieve, and transform data files for use in several different tests.

1. Tape Manager

Tape Manager, the heart of the statistical file management, allows you to create, edit, and transform data files. Unique to this program are features that allow the user to perform transformations on variables, extract and create subfiles, and selectively copy records. Up to twenty variables and an unlimited number of cases can be processed.

2. Descriptive Statistics

Descriptive Statistics computes the mean, standard deviation, standard error of estimate, variance, skewness, kurtosis, range, median, and quartiles for a variable and constructs a histogram for each value. A test scoring option for conversion of raw scores into percentiles is included.

3. Two Variable Statistics

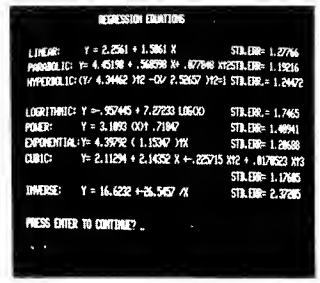
This program calculates descriptive statistics for each variable. It performs a t-test for the difference of means, computing the product-moment correlation coefficient and its associated significance level. In addition, it performs linear regression and computes standard error of estimate for Y.

4. Crosstabulation

This program constructs contingency tables for displaying frequencies, column percentages and table-wide percentages for each cell. It computes the Chi-square, the level of significance and gamma statistics. Tables as large as 10x10 may be evaluated.

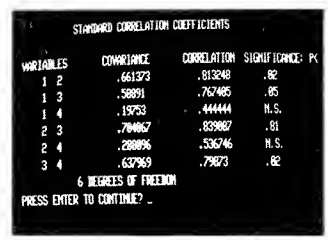
5. Regression-Trend Analysis

This program computes least-squares regression coefficients from time-series or paired data for best-fit equations (linear, parabolic, hyperbolic, logarithmic, power, exponential and cubic types). Calculates standard error of estimate for each equation and more.



6. Multiple Linear Regression

Performs multiple linear regression using up to ten independent variables. The program computes both unstandardized and normalized coefficients, covariance, multiple correlation coefficient, and the standard error of estimate.



7. Correlation Analysis

Computes product-moment correlation matrices, multiple correlation coefficients and partial correlation coefficients with their associated significance levels.

8. Analysis of Variance

This program performs one-way and two-way analysis of variance for a maximum of ten groups in each control variable. Statistics include the mean and standard deviation for each group, sum of the squares, degrees of freedom, mean square, F-ratios, and significance level.

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Economic and Ecology Simulations

The Ecology Simulations series are a unique educational tool. They are based on "simulation models" developed by the Huntington Two Computer Project at the State University of New York at Stony Brook under the direction of Dr. Ludwig Braun. The programs and accompanying documentation are written for self-teaching or classroom use and include background material, sample exercises and study guides. Graphic displays were specially developed by Jo Ann Comito at SUNY and Ann Corrigan at Creative Computing. The Ecology Simulations packages are a remarkable educational application of micro-computers.

Ecology Simulations-1

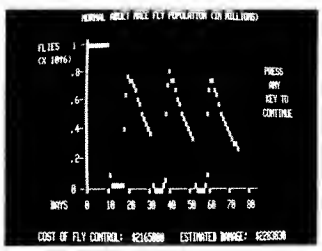
CS-3201 Cassette (16K) $24.95
CS-3501 Disk (32K) $24.95

1. Pop

The POP series of models examines three different methods of population projection, including exponential, S-shaped or logistical, and logistical with low density effects. At the same time the programs introduce the concept of successive refinement of a model, since each POP model adds more details than the previous one.

2. Sterl

STERL allows you to investigate the effectiveness of two different methods of pest control—the use of pesticides and the release of sterile males into the fly population. The concept of a more environmentally sound approach versus traditional chemical methods is introduced. In addition, STERL demonstrates the effectiveness of an integrated approach over either alternative by itself.



3. Tag

TAG simulates the tagging and recovery method that is used by scientists to estimate animal populations. You attempt to estimate the bass population in a warm-water, bass-bluegill farm pond. Tagged fish are released in the pond and samples are recovered at timed intervals. By presenting a detailed simulation of real sampling by "tagging and recovery," TAG helps you to understand this process.

4. Buffalo

BUFFALO simulates the yearly cycle of buffalo population growth and decline, and allows you to investigate the effects of different herd management policies. Simulations such as BUFFALO allow you to explore "What if" questions and experiment with approaches that might be disastrous in real life.

IQ Test

CS-3203 Cassette (16K) $14.95

IQ tests have been the subject of a great deal of controversy in the past few years. Yet, few of us know our IQ score. Now you can find out with our IQ test.

Taking advantage of the TRS-80's graphic capabilities, this test consists of 60 multiple choice questions. A special machine language routine does the scoring of the test and makes cheating almost impossible.

Ecology Simulations-2

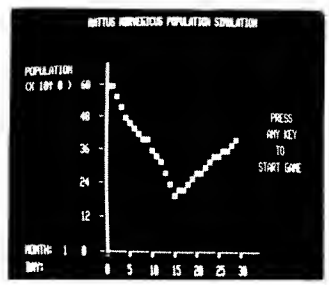
CS-3202 Cassette (16K) $24.95
CS-3502 Disk (32K) $24.95

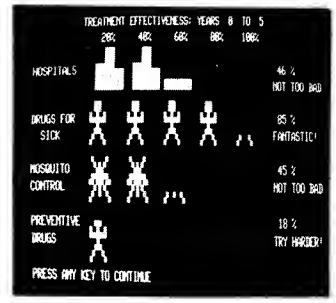
1. Pollute

POLLUTE focuses on one part of the water pollution problem; the accumulation of certain waste materials in waterways and their effect on dissolved oxygen levels in the water. You can use the computer to investigate the effects of different variables such as the body of water, temperature, and the rate of dumping waste material. Various types of primary and secondary waste treatment, as well as the impact of scientific and economic decisions can be examined.

2. Rats

In RATS, you play the role of a Health Department official devising an effective, practical plant to control rats. The plan may combine the use of sanitation and slow kill and quick kill poisons to eliminate a rat population. It is also possible to change the initial population size, growth rate, and whether the simulation will take place in an apartment building or an entire city.





3. Malaria

With MALARIA, you are a Health Official trying to control a malaria epidemic while taking into account financial considerations in setting up a program. The budgeted use of field hospitals, drugs for the ill, three types of pesticides, and preventative medication, must be properly combined for an effective control program.

4. Diet

DIET is designed to explore the effect of four basic substances, protein, lipids, calories and carbohydrates, on your diet. You enter a list of the types and amounts of food eaten in a typical day, as well as your age, weight, sex, health and a physical activity factor. DIET is particularly valuable in indicating how a diet can be changed to raise or lower body weights and provide proper nutrition.

Social and Economic Simulations

CS-3204 Cassette (16K) $24.95
CS-3508 Disk (32K) $24.95

1. Limits

LIMITS is a micro-computer version of the well known "Limits to Growth" project done at MIT. It contains a model of the world that is built of five subsystems (population, pollution, food supply, industrial output, and resource usage) linked together by six variables: birth rate, death rate, pollution generation, resource usage rate, industrial output growth rate, and food production rate.

2. Market

Market allows two or more people to play the roles of companies who are competing for the market for a particular product: in this case, bicycles.

Each player makes marketing decisions quarterly including the production level, the advertising budget, and the unit price of the product for his/her company.

3. USPop

USPOP allows the user to study many aspects of the United States' human demography (population change) including population growth, age and sex distribution. USPOP makes population projections and investigates the consequences of many different demographic changes.

(Available in November).

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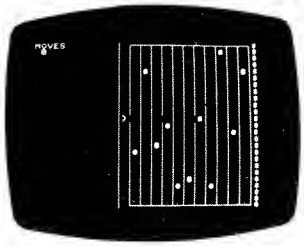
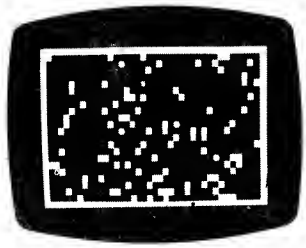
Graphic Games-I

Cassette CS-1004 $11.95 5 Programs Requires 8K



Escape. Try to escape from a maximum security prison patrolled by 11 robot guards.

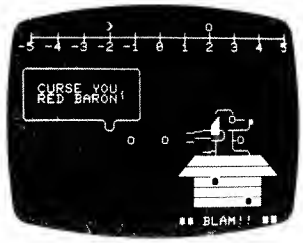


Chase. A fast, two-player game with one player pursuing the other through obstacles and zap doors.

Snoopy. Try to shoot down the Red Baron by estimating and - distances on a scale.

Sweep. Control the path of a speeding rollerball to clear nine targets in order.

Dart. Quickly estimate the answer to an arithmetic problem. One or two players.



Graphics Games-II

Cassette CS-1005 $11.95 6 Programs Requires 8K

Checkers. Pit your skill against the computer version of this all time favorite.

Dodgem. Choose the dimensions of the grid, then apply your best strategy to get all your pieces off the board before your opponent does.

Bounce. An intriguing graphics demonstration which traces the path of a ball as it bounces around the screen.

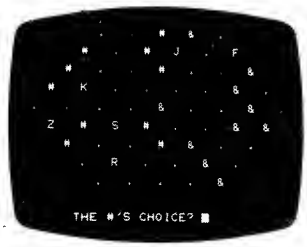
Nuclear Reaction. Wipe out your opponent's pieces by causing explosive chain reactions.

LEM. Use information provided by the computer to execute a perfect landing on the surface of the moon.

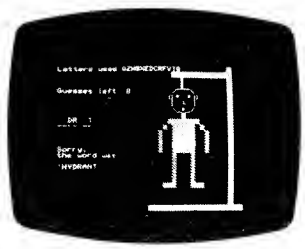
Artillery. Two players shoot cannons at each other over computer-generated terrain.

Conversational Games

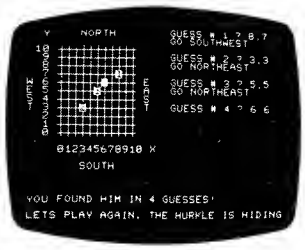
Cassette CS-1006 $11.95 5 Programs Requires 8K



Hexletter. Capture more letters on a hexagon than your opponeat.



Hangman. The popular word game, educational and fun.



Hurkle. Try and find the hidden hurkle on a 10 X 10 grid in five moves.

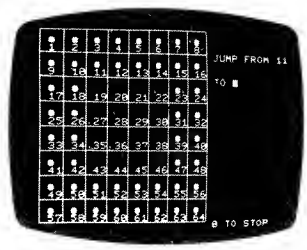
Haiku. You and the Pet compose Haiku poetry sometimes funny sometimes meaningful.

Eliza. Weizenbaum's computerized psychiatrist.

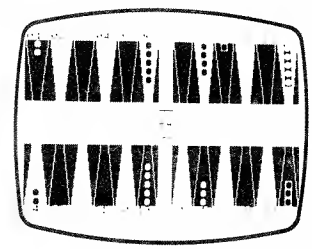
Board Games

Cassette CS-1007 $11.95 5 programs Requires 8K

Yahtzee. Rolls the dice and presents the possible options for up to four players.



One-Check. Try to clean off the outside rows of checkers with diagonal jumps. It *can* be done.



Backgammon. Varies strategy within and between games and provides a very tough challenge.

Trek 3. The PET version of the popular Star Trek game. Control your phasers, torpedoes and navigation in real-time.

Blackjack. Up to four players can play with the PET dealer.

Note: All PET software is designed to run with the new ROM.

Available 7/81

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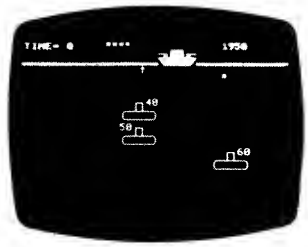
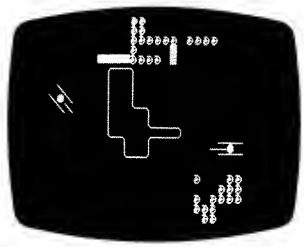
Action Games

Cassette CS-1008 $11.95 6 programs Requires 8K

Car Race. Drive around a race track to qualify for the Grand Prix.



Subs. Command a ship on the surface, dropping depth charges on enemy subs while avoiding their torpedoes.



Tank. Maneuver around walls, trees and lakes to destroy your opponent's tank.

Splat. Land a parachutist as quickly as possible without going splat.

Breakout. Try to knock all the bricks off the wall in this popular game.

Bowling. Up to four players can compete in this league.

Adventureland and Pirate Adventure

Cassette CS-1009 $19.95
Requires 24K

Adventureland (by Scott Adams) You'll encounter wild animals, dwarfs and many other puzzles and perils as you wander through an enchanted world, trying to rescue the 13 lost treasures. Can you rescue the Blue Ox from the quicksand? Or find your way out of the maze of pits? Happy Adventuring!

Pirate Adventure (by Scott Adams)— Yo Ho Ho and a bottle of rum . . . You'll meet up with the pirate and his daffy bird along with many strange sights as you attempt to go from your London flat to Treasure Island. Can you recover Long John Silver's lost treasures? Happy sailing matey

Sensational Simulations

Cassette CS-1201 $11.95 5 Programs Requires 8K

Animal

In this game, you teach the computer. You think of an animal and the computer tries to guess what it is. If the computer guesses incorrectly it will ask for a yes-no question that differentiates the animal you were thinking of from the one it guessed. In this way the computer 'learns' new animals. And just what does distinguish a leopard from an ocelot?

Fur Trader

You are the leader of a French fur trading expedition in 1779 leaving the Ontario area to sell furs and get supplies for the next year. You can choose the fort at which you wish to trade and the type of furs you wish to trade. To get the best prices for your furs, you must take your chances with the Iroquois Indians, the Lachine Rapids, and other hazards.

Hammurabi

Test your administrative abilities by governing ancient Sumeria for a 10-year term in office (if you last that long). Each year you must make decisions of how much to feed your people, and what land to cultivate and trade with neighboring city-states. Hazards include a bad harvest and rats that eat the grain in storage.

Stock Market

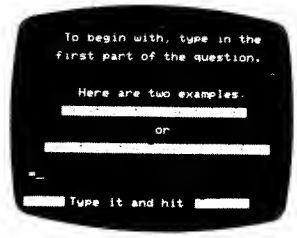
Try your luck in the stock market and make your fortune! You start with $10,000 and may buy or sell stocks with a 1% brokerage fee on each transaction. The computer controls the mini-economy and the stock exchange.

Word

How rich is your vocabulary? Match your wits against the computer by trying to guess the computer's mystery word. After each guess, clues are provided which indicate how many of the letters in your guess are in the mystery word and if any are in the correct position.

Study Made Easy

Cassette CS-1202 $14.95 Requires 8K



Study Made Easy is a quick and easy way to study. You decide which subjects you wish to study. You decided how fast you want to work and when you've done enough. The PET becomes your assistant, aiding in the entry of questions and answers.

Study Made Easy will create study drill tapes automatically. You can use this program to study chemical symbols, U.S. presidents, or any other subject which can be studied by drill and practice. The computer creates a tape that you can place in the PET and use immediately. You don't need to know anything about computers to use Study Made Easy.

Study Made Easy comes with three prepared drills and the program needed to make new study drills packaged in an attractive cassette binder. The programs are interactive, self-instructing and easy to use.

Note: All PET software is designed to run with the new ROM.

Available 7/81

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Sorcerer

sensational software

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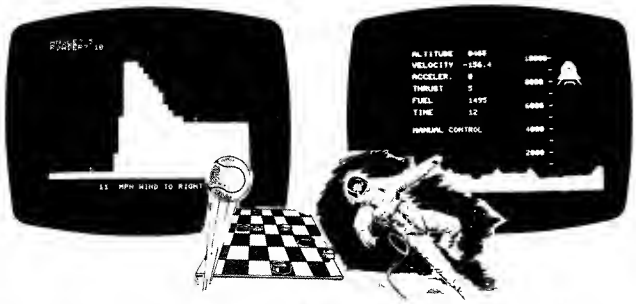
Graphics Games

Cassette CS-5001 $11.95 6 Programs Requires 8K



Pie Lob. Splatter your opponent with pie filling by choosing the correct angle and strength of your throw over a computer-generated hill.

Dodgem. Choose the dimensions of the grid, then apply your best strategy to get all your pieces off the board before your opponent does.

Bounce. An intriguing graphics demonstration which traces the path of a ball as it bounces around the screen.

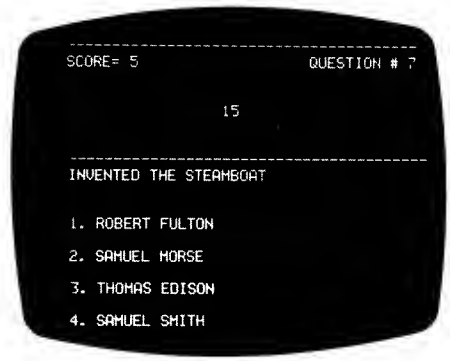
LEM. Use information provided by the computer to execute a perfect landing on the surface of the moon.

Nuclear Reaction. Wipe out your opponent's pieces by causing explosive chain reactions.

Checkers. Pit your skill against the computer version of this all time favorite.

Trivia Unlimited

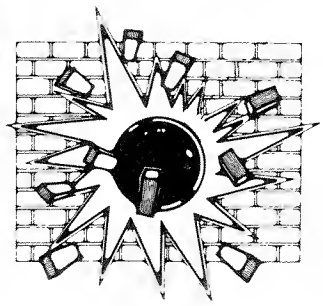
Cassette CS-5002 $11.95 Requires 8K



Test your expertise in any of seven areas: science, geography, history, computers, TV and movies, English language, or trivia. Speed and number of correct answers determine your score in this challenging series of multiple-choice quizzes. Over 200 questions in all.

Strategy Games

Cassette CS-5009 $14.95 4 Programs Requires 8K Sorcerer



Breakout. Break through the wall at the top of the screen by bouncing the ball off your paddles in this challenging game from the video arcades.

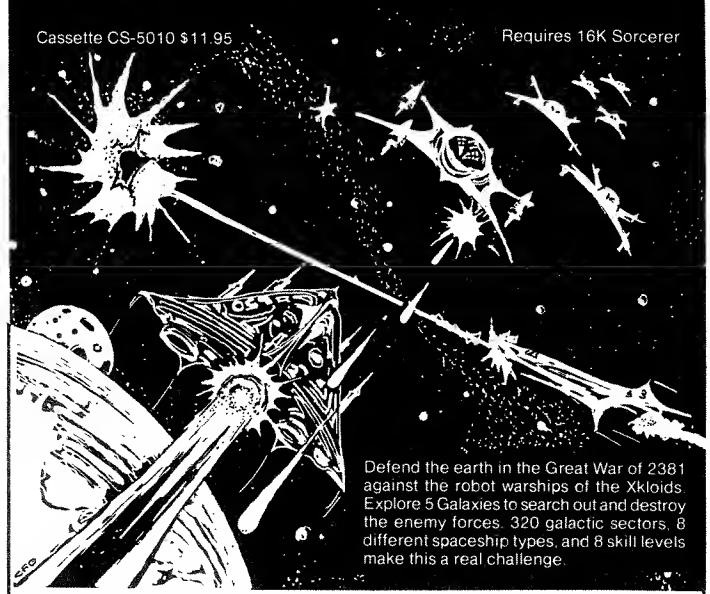
Prize. Two players compete to match the prizes behind the hidden squares.

Deflection. Set up deflectors to move your piece and destroy the computer's pieces.

Sweep. Clear the board of the computer's pieces with the minimum number of changes in direction.

Super Space Battle

Cassette CS-5010 $11.95 Requires 16K Sorcerer



Defend the earth in the Great War of 2381 against the robot warships of the Xkloids. Explore 5 Galaxies to search out and destroy the enemy forces. 320 galactic sectors, 8 different spaceship types, and 8 skill levels make this a real challenge.

Air Traffic Controller
Cassette CS-5008 (16K) $11.95

This fast-moving, real-time program puts you in the chair of an air traffic controller. You control 27 prop planes and jets as they land, take off and fly over your air space. You give orders to change altitude, turn, maintain a holding pattern, approach and land at two airports. Written by an air traffic controller, this realistic machine language simulation includes navigational beacons and requires planes to take off and land into the wind. Continuously variable skill level.

Adventures on Cassette
Five adventures are available on cassette for the Sorcerer. See descriptions in the Apple or TRS-80 Section. Each adventure requires 16K and cost $14.95.
CS-5003 Adventureland
CS-5004 Pirate Adventure
CS-5005 Mission Impossible
CS-5006 Voodoo Castle
CS-5007 The Count

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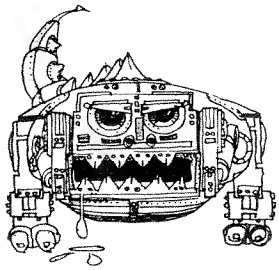
SOL-20

Strategy Games CS-8004 Cassette (32K) $11.95



1. Wumpus 1

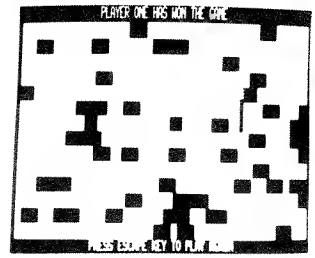
Chances are if you ever leave your keyboard you have heard of the mythological Wumpus. In the game of Wumpus 1, you are scouring a network of underground caves in search of the prized Wumpus. The dreaded super bats and bottomless pits make Wumpus hunting a risky affair. On each turn, as you wind your way through the caves, you have a choice of moving or shooting through the cave. Bagging a Wumpus wins the game, but if you accidentally stumble into his cave, the Wumpus will enjoy a tasty dinner of sauteed computer freak.

2. Wumpus II

If you master the dodecahedron cave network in Wumpus I, you may proceed to Wumpus II which allows you to choose from five different caves, or you can design your own. Super bats and the infamous bottomless pits are also included in Wumpus II, so be prepared to jump into the frying pan!

3. Trap (Machine Language)

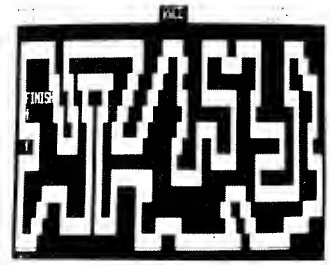
This two-player game challenges you to circle and trap your opponent. Move your marker around the board, leaving a trailing path that cannot be crossed. This real-time game gets very frantic as the markers move faster and faster.



4. Race

(Cassette Extended BASIC)

RACE is a car racing game which gives you a choice of three different tracks. Use the number pad to control the direction of your Formula 1 racer around the course to get the best time while avoiding crashes.



5. Kingdom

(Cassette Extended BASIC)

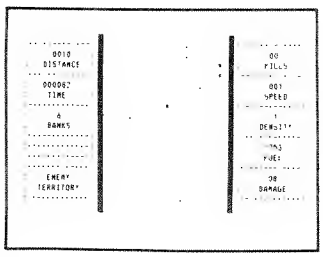
This is a particularly challenging version of the popular Hammurabi game. You rule a kingdom, sowing and reaping crops, buying and selling land and trying to keep the peasants happy. Hazards include bad weather and rats in the grain bin. Remember too, how popular impeachment was in the old days, especially when the natives got restless. (Available in October)

Space Games CS-8003 Cassette (32K) $11.95

1. Asteroid

(Machine language)

How good an astrogator are you? ASTEROID gives you a chance to find out as you navigate through space, avoiding asteroids, stars and the hostile space meanies. You have torpedoes with which to defend yourself, but the enemy shoots back with deadly accuracy. This real-time program will run in 16K.



2. Lunar

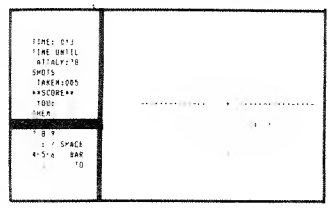
(Cassette Extended BASIC)

This traditional and popular lunar landing game puts you in the pilot's seat of an Apollo space mission. Control the speed of descent and horizontal motion of the spacecraft. This version also adds lunar mountains for an extra challenge.

3. Star Wars

(Cassette Extended BASIC)

If you hate Darth Vader, you'll love Star Wars. Take an X-Wing fighter into combat and save the Rebels' base camp. Using the number pad to control the ship, you must line up the TIE fighters in your sights and zap them with lasers. This real time game is fun for aliens of all ages. May the Force by with you!

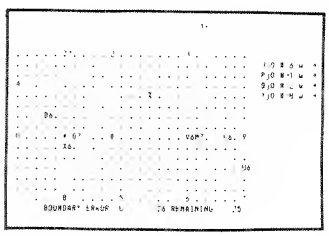


4. Romulan

(Cassette Extended BASIC)

Your mission is to destroy an invading Romulan space craft, but you'll have to find it first. The Romulans have a NEW cloaking device. By activating your sensors, the Romulan's position will be shown briefly, but the sensors use a lot of energy. Maneuver through space and around stars looking for the deadly enemy, but be careful! The nasty Romulans fire back. (Available in October)

Air Traffic Controller CS-8001 Cassette (4K) $11.95



This real time machine language program puts you in the chair of an air traffic controller. There are 27 airplanes - jets and prop planes - which must be controlled as they land, take off, and fly over your air space. You give the orders to change altitude, turn, maintain a holding pattern, clear for approach, and land at your two airports. This realistic simulation includes navigational beacons, collisions, and requires the planes to take off and land into the wind. Air Traffic Controller was written by an air traffic controller and is a popular favorite of the Creative Computing staff! (Available in October)

Reading Comprehension CS-8201 Cassette (32K) $50.00

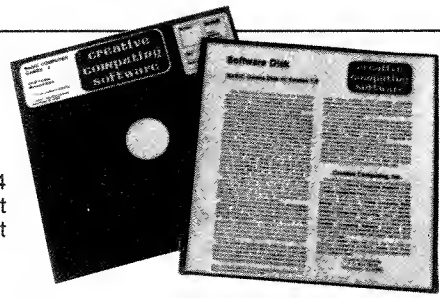
Reading comprehension is an important skill for any student to master. Unfortunately, most traditional methods for developing this skill have been tedious for both the student and instructor. Reading Comprehension is a five cassette package designed to help develop these skills.

Teachers have complete control over the subject matter and level of difficulty of the exercises. The package uses cassette based files to present a short story and accompanying multiple choice questions on the screen. Two of the programs are used for creating, copying, and editing these files. Two other programs use these files to present the story and the quiz. The final program contains a sample short story and questions. A 32-page instruction manual is included in the package.

The package requires a SOL-20 with a minimum of 32K of memory and Processor Technology's Extended Cassette BASIC.

CP/M

All disks expect CS-9004 require 48K and Microsoft Basic. All 8" CP/M disks cost $24.95.



Basic Games-1, CS-9001

Includes the Following:

Acey Ducey	Civilwar
Amazing	Combat
Animal	Craps
Awari	Cube
Bagels	Depth Charge
Banner	Diamond
Basketball	Dice
Batnum	Digits
Battle	Even Wins I
Blackjack	Even Wins II
Bombardment	Flip Flop
Bombs Away	Football 1
Bounce	Football II
Bowling	Fur Trader
Boxing	Golf
Bug	Gomoko
Bullfight	Guess
Bullseye	Gunner
Bunny	Hammurabi
Buzzword	Hangman
Calendar	Hello
Change	Hexapawn
Checkers	Hi-Lo
Chemist	High I-Q
Chief	Hockey
Chomp	

Basic Games-2, CS-9002

Includes the Following:

Horserace	Rocket
Hurkle	Rock, Scissors, Paper
Kinema	Roulette
King	Russian Roulette
Letter	Salvo
Life	Sine Wave
Life For Two	Slalom
Literature Quiz	Slots
Love	Splat
Lunar LEM Rocket	Stars
Madlib	Stock Market
Mastermind	Super Star Trek
Math Dice	Synonym
Mugwump	Target
Name	Trek Instructions
Nicomachus	3-D Plot
Nim	3-D Tic Tac Toe
Number	Tic Tac Toe
One Check	Towers
Orbit	Train
Pizza	Trap
Poetry	23 Matches
Poker	War
Qubic	Weekday
Queen	Word
Reverse	

ADVENTURE

Original Adventure
Disk CS-9004 (48K) $24.95

(by Crowther, Woods, Manning and Roichel)-Somewhere nearby is a colossal cave where others have found fortunes in treasures and gold, but some who have entered have never been seen again. You start at a small brick building which is the wellhouse for a large spring. You must try to find your way into the underground caverns where you'll meet a giant clam, nasty little dwarves, and much more. **This Adventure is Bi-Lingual**—you may play in either **English or French**—a language learning tool beyond comparison. Runs in 32K CP/M system (48K required to SAVE GAME feature). Even includes SAM76 language in which to run the game. The troll says "Good Luck."

Two Adventures
Disk CS-9003 (48K) $24.95

Adventureland (by Scott Adams)-You wander through an enchanted world trying to recover the 13 lost treasures. You'll encounter WILD ANIMALS, BEINGS, and many other perils and puzzles. Can you rescue the BLUE OX from the quicksand? Or find your way out of the maze of pits? Happy Adventuring....

Pirate Adventure (by Scott Adams)-"Yo Ho Ho and a bottle of rum..." You'll meet up with the pirate and his daffy bird along with many strange sights as you attempt to go from your London flat to Treasure Island. Can you recover LONG JOHN SILVER's lost treasures? Happy sailing matey....

Basic Games-3, CS-9005

Includes the Following:

Artillery-3	Dodgem
Baccarat	Doors
Bible Quiz	Drag Race
Big 6	Dr. Z
Binary	Eliza
Blackbox	Father
Bobstones	Flip
Bocce	Geowar
Boga II	Grand Prix
Bombrun	Guess-It
Bridge-it	ICBM
Camel	Ink Blot
Chase	Joust
Chuck-A-Luck	Jumping Balls
Close Encounters	Keno
Column	L Game
Concentration	Life Expectancy
Condot	Lissajous
Convoy	Magic Square
Corral	Man-Eating Rabbit
Countdown	Maneuvers
Cup	Maze
Dealer's Choice	Millionaire
Deepspace	Motorcycle Jump
Defuse	Lewis

Basic Games-4, CS-9006

Includes the Following:

Mastermind	Seawar
Masterbagels	Shoot
Matpuzzle	Smash
Minotaur	Strike 9
Nomad	Tennis
Not One	Tickertape
Obstacle	TV Plot
Octrix	Twonky
Pasart I	Two-to-Ten
Pasart II	UFO
Patterns	Under & Over
Pinball	U.S. Population
Rabbit Chase	Van Gam
Roadrace	Warfish
Rotate	Word Search Puzzle
Safe	Wumpus I
Scales	Wumpus II
Schmoo	Yahtzee
Seabattle	4-In-A-Row

Special Packages

Special package: BASIC Computer Games Book and Disks 1 and 2
CS-9000 $50.00

Special package: More BASIC Computer Games Book and Disks 3 and 4
CS-9007 $50.00

BASIC Computer Games Book, More BASIC Games Book and All four disks
CS-9008 $95.00

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Microsystems — the CP/M and S-100 User's Journal

CP/M is the software bus! S-100 is the hardware bus for sophisticated microcomputer users!

If you are a CP/M user, on any system—S-100, Apple, TRS-80, Heath, Ohio Scientific, Onyx, Durango, Intel MDS, Mostek MDX, etc—after all CP/M is the Disk Operating System that has been implemented on more computer systems than any other DOS—then *Microsystems* magazine is the "only" magazine published specifically for you!

Or, if you use an S-100/IEEE-696 based computer—and the most sophisticated microcomputer systems available use the S-100/IEEE-696 hardware bus—then *Microsystems* magazine is the "only" magazine published specifically for you!

We started publishing *Microsystems* almost two years ago to fill the void in the microcomputer field. There were magazines catering exclusively to the TRS-80, Apple, Pet, Heath, etc. system users. There were also broad based publications that cover the entire field but no one system in depth. But no magazine existed for CP/M users—nor did one exist for S-100 users.

The why and what of a software bus

First of all what is a "bus?" And why do we call CP/M "the software bus?"

A "bus" is a technique used to interface many different modules. Examples are the "S-100/IEEE-696 Bus" and the "IEEE-488 Bus." These are hardware buses that permit a user to plug a bus-compatible device into the bus without having to make any other hardware modifications and expect the device to operate with little or no monification.

CP/M is a Disk Operating System (DOS). It was first introduced in 1974 and is now the oldest and most mature DOS for microcomputer systems. CP/M has now been implemented on over 250 different computer systems. It has been implemented on hard disk systems as well as floppy disk systems. It is supported by two user groups (CP/M-UG and SIG/M-UG) that have released over sixty volumes containing over 1,600 public domain programs that can be loaded and run on systems using the CP/M DOS. Add to this another 1,500 commercially available CP/M software packages and you have the largest applications software base in existence.

CP/M is the only DOS for micros that has stood the test of time (seven years) with the highest level of compatibility from version to version. And over the years this compatibility has been maintained as new features have been added.

This is why we say "CP/M is the software bus" and why *Microsystems* magazine is vital to providing CP/M users with technical information on using CP/M, interfacing to CP/M, new CP/M compatible products and for CP/M users to exchange ideas.

Why support the S-100 bus?

S-100 is currently the most widely used microcomputer hardware bus. It offers advantages not available with any other microcomputer system. Here are a few of the advantages:

S-100 is processor independent. There are already thirty different S-100 CPU cards that can be plugged into an S-100 bus computer. Nine 8-bit microprocessors are available: 6502, 6800, 6802, 6809, 2650, F8, 8080, 8085 and Z80. Eight 16-bit microprocessors are available: 8086, 8088, 9900, Z8000, 68000, Pascal Microengine, Alpha Micro (similar to LSI-11) and even the AMD2901 bit slice processor. Take your pick from the incredible offerings.

S-100 has the greatest microcomputer power. What other microcomputer system has direct addressing of up to 16 megabytes of memory, up to 65,536 I/O ports, up to 10 vectored interrupts, up to 16 masters on the bus (with priority) and up to 10 Mhz data transfer rate? You will have to go a long way to use up that computing power.

S-100 is standardized. The S-100 bus has been standardized by the IEEE (Institute of Electrical and Electronic Engineers) assuring the highest degree of compatibility among plug-in boards from different manufacturers. And, *Microsystems* has published the complete IEEE S-100/696 standard (all 26 pages).

S-100 has the greatest hardware support. There are now over sixty different manufacturers of about 400 different plug-in S-100 boards. Far greater than any other microcomputer system.

With all these advantages is it any wonder that S-100 systems are so popular with microcomputer users who want to do more than just play games?

For the serious computer user.

Each issue of *Microsystems* brings you the latest in the CP/M and S-100 world. Articles on applications, tutorials, software development, product reviews, and lots more, to keep you on top of the ever changing microcomputer scene.

And if you are an S-100 system user using other operating systems (e.g. North Star) *Microsystems* also supports you.

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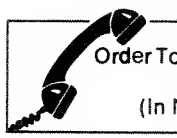

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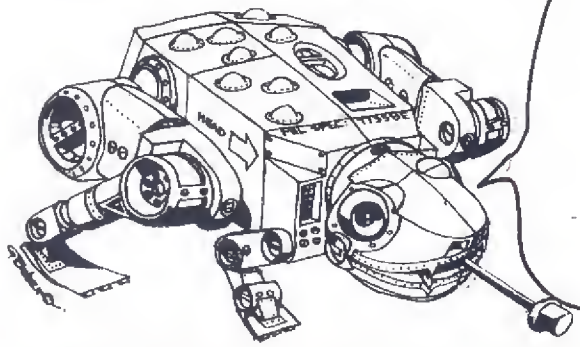

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